THE

ENTOMOLOGIST'S ANNUAL

FOR

MDCCCLXVIII.

WITH A PLAIN PLATE.

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JOHN VAN VOORST, PATERNOSTER ROW.

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"It is always a good plan to fix definite periods for completing work—else it drags on uncompleted for months, perhaps for ever."

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EXPLANATION OF PLATE.

Fig. 1. *Polia nigrocincta*, Treitschke, see page 105.
2. *Halonota ravulana*, Herrich-Schäffer, see page 110.
3. *Solenobia conspurcatella*, Zeller, see page 127.
4. *Ebulea catalaunalis*, Duponchel, see page 108.
5. *Eros affinis*, ♀, Paykull, see page 68.
6. *Brontes planatus*, ♂, Linné, see page 55.
7. *Tomicus dispar*, ♀, Fabricius, see page 55.
8. *T. dispar*, ♂, see page 55.

The flood of Coleopterous matter having this year subsided, the Annual appears more in its usual form.

The chapter in memory of the late Carl von Heyden being now completed, we shall next year devote some pages to the Entomological labours of that great American Micro-Lepidopterist, Dr. Brackenridge Clemens, by whose untimely death our favourite science has suffered a grievous loss. From him we *expected* much.

The recent visits of the American Entomologists, Messrs. Grote and Robinson, to Europe, where after leaving London they spent many weeks visiting various parts of the Continent and making the personal acquaintance of most of our leading Entomologists,—and the Entomological tour now in progress by the Russian Lepidopterist, Baron von Nolcken, including Stettin, Meseritz, Berlin, Brunswick, Hanover, London, Epping, Wiesbaden, Frankfort, Zürich, Cannes, Münich, Ratisbon, Vienna, Prague, Brieg, Breslau, Dresden, &c.,—are full of promise for Entomological science.

The contact of mind with mind, and man with man, elicits sparks of truth that otherwise might *long* be latent.

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TRICHOPTERA.

Notes on British Trichoptera.

By R. M'Lachlan, F.L.S.

Perhaps the greatest charm in the study of Entomology consists in the fact that it has no limits. We can never contemplate our collections and books, and say, "We are acquainted with all they can teach us; the work is finished; we will now, in a measure, forget our previous labours, and commence something fresh." Even he who collects for the mere purpose of amassing is never subject to the sensation that he has nothing more to do; for though the labour be more severe, still every fresh acquisition brings increased pleasure in proportion to the difficulty experienced in obtaining it. And when these considerations are applied by the more advanced student, they increase in force tenfold. New facts in systematic and faunistic Entomology, new discoveries in points of structure, new observations on habit, all tend to prove that the amount of knowledge already possessed, however great that may fondly appear to the possessor, is but one drop in the ocean that exists around. I will apply these remarks to myself and the branch of Entomology which I have made my favourite study for some years past. About two years since I finished my "*Trichoptera Britannica*," and therein embodied all I knew at that time. But in these two years many points have been elucidated; additions have been made to our fauna, and

much local information has been obtained. Still the progress has not been that which I could have wished. Other branches of the science still hold almost undisputed sway over the minds of workers, and Neuropterous insects, in a general sense, are yet very much "out in the cold." I propose, however, in these Notes to mention briefly the principal discoveries in British *Trichoptera* made since the publication of my Monograph, premising that this little paper is not to be considered as supplementary, because I intend very shortly, in another place, to publish a first supplement, which could scarcely be done here, owing to the descriptive figures and lengthy notes that must necessarily form part of it; and it is further postponed in order to enable me to complete some important synonymic additions and corrections. These Notes are thus only preliminary.

Family PHRYGANIDÆ.

Phryganea obsoleta, Hagen. Three beautiful male examples were taken in 1867 at Rannoch, Perthshire, by Mr. B. Cooke, jun., one of which is in my collection, thanks to the liberality of the captor's uncle, Mr. B. Cooke, of Manchester.

Family LIMNEPHILIDÆ.

Limnephilus nobilis, Trichop. Brit. p. 33, 5. It would appear that the individual referred to is not the true *nobilis* of Kolenati, but is rather *decipiens* of that author (Gen. et Spec. Trichop. pt. i. p. 44, 5). Mr. Wormald has been hitherto unsuccessful in his endeavour to take more specimens. Mr. Barrett took a male in the neighbourhood of Haslemere in 1867.

Limnephilus (*Chætotaulius*) *striola*, Kolenati, Gen. et Spec. Trichop. pt. 1, p. 47, 9. This interesting addition to

our fauna was captured by Mr. B. Cooke at Bowdon, Cheshire, in 1866 and 1867, and I have also an example given to me by Mr. Piffard, and probably taken in the Lake District. It is of small size for the section (*Chætotaulius*) to which it belongs; scarcely exceeding *L.* (*Goniotaulius*) *vittatus*. Yet the males have the "beard" on the underside of the first apical sector of the posterior wings more strongly developed than in any other species of the section. It is a common continental insect, and the appendices are recognizably figured by Brauer in his "Neuroptera Austriaca," fig. 82. See also Aug. Meyer (Der Phryganiden Westphaliens), in the "Stettiner Entomologische Zeitung" for 1867, p. 161, for description of the larva and case; and (p. 153) for notes on the coupling of a male of *L. striola* with a female of *Anabolia nervosa*. A singular, partly gynandromorphous, example has been taken by Mr. Cooke. In this specimen the abdomen is wholly female in structure, but all the other parts of the body present characters of both sexes. Thus the right-hand maxillary palpus is 3-jointed, the left 5-jointed; the right antenna is much stronger than the left, especially in the basal joint; the right-hand anterior wing is differently marked to the left, and the first apical sector of the right posterior wing shows beneath the strongly developed "beard," which is wanting on the left-hand wing.

L. ignavus, Hagen. A ♀ was taken by Mr. B. Cooke, at Bowdon, Cheshire, in 1866.

L. sparsus, Curtis. This species is almost endlessly variable. A ♀, taken at Scarborough, in 1866, shows no trace of dark irrorations, and is almost of the uniform reddish-fuscous tint of *Anabolia nervosa*.

Anabolia cœnosa, Curtis. I have seen a ♀ from Mr. B. Cooke's collection; locality uncertain.

Halesus guttatipennis, M'Lachlan. I suspect that this may prove identical with *H. auricollis*, Pictet (= *nigricornis*, Brauer).

Apatania muliebris, M'Lachlan. I have so named the insect found in Arundel Park (Trichop. Brit. p. 74), being convinced that it is distinct from the northern *vestita*. The male yet remains unknown, notwithstanding visits to the locality at various seasons. The species is confined to a space of a few yards in extent, presenting a peculiar condition owing to a small ripple, and there the female is abundant. One is almost tempted to believe that the phœnomenon known as parthenogenesis may perhaps exist here.

Family SERICOSTOMIDÆ.

Mormonia (*Helictomerus*) *basalis*, Kolenati. *Lasiocephala taurus*, Costa (Mem. Ac. Sc. Napoli, 1857, t. ii. p. 219) is identical with this species. Hence the term *Lasiocephala* must take the place of *Helictomerus*. An additional British locality is Woolmer Forest, Hampshire, where I have taken it.

Family LEPTOCERIDÆ.

Leptocerus cinereus, Curtis. A further examination of Pictet's type of *annulata* convinces me of the identity of the latter with *cinereus*.

Setodes intaminata, M'Lachlan (Trichop. Brit. p. 117). I am now able to pair the unique female example which served as the type of this species. A male insect, taken by Mr. Pryer from off a gas-lamp at Highgate, near London, is no doubt the same species. It is not in good condition, but shows a remarkable character in the possession of tufts of long and strong hairs on the last dorsal segments of the

abdomen. In size it is smaller than the male, expanding only 9‴.

Setodes reducta, M'Lachlan. *Mystacides ferruginea* of Ed. Pictet (Névroptères d'Espagne, p. 95, pl. xiii, fig. 1—6) is probably identical with this insect.

Family HYDROPSYCHIDÆ.

Hydropsyche fulvipes, Curtis. I have received from Mr. Dale both sexes of this insect taken at the same locality as were Curtis's types. I am now convinced of its distinctness from *H. angustipennis*, with which I had previously united it.

Hydropsyche ophthalmica, Rambur. I expressed a doubt (Trichop. Brit. p. 130) whether the female of this species possessed the large eyes which so abundantly distinguish the male. I can now safely aver that the female has the ordinary small eyes, having found an example of that sex with the males at the usual Thames locality. Excepting in the eyes it differs from the male only in its slightly increased size. I now think the Parisian example of this sex, previously referred to, does not belong here.

Wormaldia subnigra, M'Lachlan, occurred somewhat commonly at a little waterfall, at Scalby Beck, near Scarborough. Mr. B. Cooke has it from Rannoch and Ireland.

Cyrnus flavidus, M'Lachlan. This insect is in Mr. B. Cooke's collection, from Rannoch, and also from near Manchester. Hence the hopes I previously expressed have been realized. In a letter, received from Vienna, it has been reported from Podolia, a province of south-eastern Russia.

Family RHYACOPHILIDÆ.

Genus Beræa. The characters of this, both generic and

specific, will require thorough revision and modification. The necessary drawings are all made, but I cannot here explain intelligibly in words, that which a few outline figures will represent. *B. Maurus* has been found rather abundantly at Dunkeld by Mr. Stainton; hence it may possibly prove to find a more congenial home in the northern parts of our island. The insect referred by Hagen to *Phryganea minuta* of Linné (*Silo minutus*, Kolenati), and noticed in my Monograph at page 166 (foot-note), has occurred at various localities. Mr. Eaton has erected a genus for its reception, which he terms *Bereodes* (Annals and Magazine of Natural History, June, 1867). Perhaps in so doing he is right, as it is certainly somewhat distant from the other species of *Berœa;* yet each of these present notable differences in neuration and other structural characters.

And now a few words on two species which remain as yet unique, at any rate as British. Firstly, I will speak of *Limnephilus pavidus*, Hagen (Trichop. Brit. p. 31). A male insect from the northern part of the Scandinavian peninsula, now in my collection, agrees sufficiently with the type to cause me to think it identical as a species (*vide* Stettiner Entomologische Zeitung, 1867, p. 50). Hence, supposing the specimen in the British Museum to be really of native origin, it is probable that the species should be sought for in the North of Scotland. The second species, *Stenophylax dubius* of Stephens, is, to my mind, yet doubtful as European. It presents characters which are not found in any certified European insect with which I am acquainted, but which are proper to several (mostly undescribed) North American species. Thus, while admitting its right, at present, to a place in our lists, I cannot but feel a suspicion that it may have been erroneously or accidentally introduced—time will show.

The determination of the genus, the larvæ of which form

quadrangular cases (Trichop. Brit. pl. ii. fig. 34), yet remains undecided. That it contains at least two British species is rendered tolerably evident, by cases in my collection; these presenting differences in size, and in the materials employed, sufficient to cause it to appear that the two forms could not have been constructed by one and the same species.

In conclusion I will glance at local considerations. Any district, diligently worked, will no doubt produce a due share of novelties, supposing the observer to have obtained the experience which these, and all other insects, require for successful capturing. Yet two extensive portions of our kingdom merit especial attention. One of these is the north of Scotland, from Perthshire northwards, including the islands, a district which must possess many, yet undiscovered, Scandinavian forms. My own visit to Perthshire was made too early in the season to afford any adequate idea of the productions of the Highlands: July and August would be the best months. The other district is the south-west of Ireland. The insect fauna there is already known to approximate, more closely than elsewhere, to that of the Iberian peninsula, and an additional evidence exists in my own collection, in an example of a May-fly, *Baëtis flavidus* of Ed. Pictet, from Killarney. So I anticipate that when a Neuropterist shall work this locality in earnest, he will reap an abundant reward.

Forest Hill, London,
4th November, 1867.

In Memoriam.

CARL VON HEYDEN.

BORN JANUARY 20TH, 1793—DIED JANUARY 7TH, 1866.

(*Continued from the Entomologist's Annual for* 1867, *p.* 42.)

HAVING given in the previous Annual notices of the Geometrina, Pyralidina, Crambina, and Tortricina, contained in the series of articles by Carl von Heyden, published in the Stettin Entomologische Zeitung in the years 1860—1865, I now proceed to the consideration of the TINEINA enumerated in these papers; these are 72 in number, and include upwards of a dozen species not previously described. I have also included the three Plumes, treated of so as to exhaust the entire series of articles.

The figures between brackets at the end of each notice indicate the date of entry in the observer's journal.

H. T. S.

MELASINA LUGUBRIS, Hübner, Heyden (E. Z. 1863, p. 105). I found in July several full-grown and one small larva near St. Moritz, in the Upper Engadine, near the old road towards Cresta, in stony places, just where the stream descends from the Alp Laret. I have also received the case and the imago from the same locality, from Herr Knateck of Sils.

The larva which I brought home with me to Frankfort,

certainly ate in captivity grass and other leaves, but soon died.

The larva resembles more that of a *Psyche*, than that of a *Talæporia*.

Blabophanes imella, Hübner, Heyden (E. Z. 1860, p. 118). I found these larva near Frankfort, in November, in great plenty in an old felt-shoe, which was lying in a field almost covered with earth. The larva lived gregariously in closely-crowded tubes, which were externally coated with earth.

Some of the moths were developed in a few days, the remainder in the month of May following. (1826.)

Tinea fenestratella, n. sp., Heyden (E. Z. 1863, p. 342).

Alis anterioribus angustatis, flavido-griseis; in medio maculis tribus pallidis, quarum anterior subhyalina.

Exp. al. 4 lin.

Anterior wings rather shining, yellowish-grey, mixed with darker scales. In the middle of the wing is an oval, whitish, almost transparent spot, and beyond this, towards the apex of the wing, two opposite spots more indistinct, yellowish and elongate. The cilia are dark, with a blackish divisional line. On the grey underside only the transparent central spot is perceptible.

Posterior wings pale grey, with the apex and cilia rather darker.

Head clothed with reddish-brown hairs, darker on the crown. Labial palpi with drooping, narrower terminal joint, brown. Antennæ rather shorter than the anterior wings, thin, brown. Thorax and abdomen brownish. Legs yellowish; the tarsi blackish above.

It has the form of a small *Tinea imella*, Hb., with very narrow anterior wings.

I only possess one male specimen, with a very narrow abdomen, which I bred early in June from dry wood. It ran uncommonly quickly. (1843.)

Tinea Gliriella, n. sp. Heyden (E. Z. 1865, p. 102).

Capillis flavo-albidis; alis anterioribus flavido-canis, maculis nigro-fuscis, margo interior late flavo-albida, vix punctata.

Exp. al. 6 lin.

This species is nearly allied to the very variable *Tinea Granella*, but is certainly distinct.

The antennæ and palpi are brownish-yellow; the terminal joint of the palpi paler. The tuft of the head is yellowish-white, generally with a darker spot in the middle. Thorax and abdomen brownish-yellow. Legs yellowish, the tarsi somewhat spotted with darker.

Anterior wings yellowish-grey, on the costal half rather mixed with brownish; at the base of the costa is a black-brown spot, but it is not, as in *Granella*, prolonged sideways below. Then almost as in *Granella*, on the costa before the middle, is a black-brown spot, a larger one in the middle rather obliquely placed, and 4 or 5 very small ones towards the apex of the wing. A paler yellowish-white space extends from the underside of the small shoulder-spot obliquely to the anal angle. It bears at the base of the wing in the middle a small, very fine, brown longitudinal line, as also a spot below the middle, and one or two before the anal angle. The darker portion is indistinctly spotted with dark towards the apex of the wing, but the broad black spot which in *Granella* stands in the middle before the hinder

margin, is here entirely wanting. The cilia are grey, indistinctly spotted, and have a dark division line.

Posterior wings grey, with a reddish gloss. The underside yellowish-grey.

I have several times bred this species here from rotten wood, from the end of May to the end of June. (1858.)

Tinea Roesslerella, n. sp., Heyden (E. Z. 1865, p. 102).

Capillis flavescentibus; alis anterioribus subacuminatis, fusco-nigrescentibus, fasciis duabus maculâque ante apicem obsoletis flavido-albidis.

Exp. al. 5—5⅓ lin.

Tuft of the head brownish-yellow, rather darker between the antennæ; back of the head grey; antennæ two-thirds the length of the anterior wings, thin, yellowish, annulated; the basal joints dark. Labial palpi twice the length of the eyes, with recumbent scales; the second joint longer and thicker than the terminal joint, yellowish, darker at the apex and clothed with bristles, which are little shorter than the darker, pointed terminal joint, which is yellowish at the tip. The maxillary palpi are short, robust and yellowish. The thorax and abdomen are silky-grey, with some yellowish hair-like scales, especially at the sides. Anal tuft yellowish. The anterior legs are brown, the posterior pair unicolorous pale yellow.

Anterior wings long, narrow, indeed pointed, (including the not very broad cilia,) rather shining, dirty brownish-black; between the base and the middle is a broad, perpendicular, yellowish-white fascia sometimes interrupted in the middle; beyond the middle is an equally broad yellowish-white fascia, likewise sometimes interrupted in the middle, but which goes rather obliquely from the costa to the anal

angle. On the costa towards the apex of the wing is a spot of the same colour. When the fasciæ are interrupted, the wings show five pale spots. The cilia are yellowish, mixed with a few dark scales, especially towards the anal angle.

Posterior wings narrow, lanceolate, pointed, silky-grey, with yellowish cilia.

On the underside all the wings are silky-grey, with the cilia unicolorous yellowish.

Tinea Roesslerella is not easily to be confused with any other of the smaller species of the genus, and comes nearest to the group of *Granella*, by its long narrow wings.

I have named this species after its discoverer, Dr. Rössler, of Wiesbaden, to whom the Lepidopterology of the father-land is much indebted; he found five specimens in that neighbourhood in May, amongst *Silene nutans*. But I do not imagine that this is the food-plant of the larva. (1864.)

Tinea parietariella, Bruand; *Nigripunctella*, Heyden (E. Z. 1861, p. 33), non Haworth. I found the case abundantly on the walls of the vineyards, at Rudesheim, on the Rhine, also sparingly at Mayence; always on, or at any rate near, the turf-like growing mosses, *Grimmia pulvinata* and *Barbula muralis*. It is found both in oblique and perpendicular positions. I have collected a great number of these cases, and, placing them in a cage, have furnished them with the above-named mosses, often obtained moist; but I have not observed that the larvæ fed upon them. On the other hand, they have eaten up all the refuse, with the parts of insects; hence, it is probable that they only consume animal food. They were very restless, and many crawled about almost constantly till the middle of June. I had already given up all for lost, when some moths made their appearance from the beginning to the middle of July, the pupæ protruding out of the cases as far as the ends of the

wing-sheaths. In June, I visited the locality where I had found the cases, but could find none, since, doubtless, in order to undergo their transformation, they had concealed themselves amongst the stones.

That the larva does not feed on *Parietaria officinalis* is certain, as this plant does not occur in the neighbourhood.

My imago agrees quite well with Herrich-Schäffer's description and figure, but it varies much in the size of the dark spots on the anterior wings. In the living specimens the abdomen is yellow. The females I had pinned, before dying deposited eggs with much wool. (1860.)

Note (E. Z., 1865, p. 106).—The described *Tinea* is the *Parietariella* of Bruand. The *Tinea nigripunctella* of Haworth is a different species, hitherto only found in England.

Tinea argentimaculella, Stainton, Heyden (E. Z. 1863, p. 106). I found the larva, at the beginning of June, on walls at Jugenheim, on the Bergstrasse. It lives on mealy, grey-green lichen dust, in delicate, tubular, rounded, serpentine galleries, often an inch in length, which lie on the stones, are of the colour of the lichen, and are covered with its mealy substance. The above-mentioned lichen dust is the young form of a *Cladonia*.

In the middle of June it severs a little piece from the end of its tube, rather larger than a millet-grain, and rather pointed at one end, in order to undergo its transformation; and in this it changes to the pupa state in a rather firm paper-like cocoon.

The moth made its appearance at the end of June and beginning of July. (1862.)

Tinea vinculella, H. S.; *Pagenstecherella*, Heyden

(E. Z., 1861, p. 32), Hüb. ? I found the larva in its flat-lying case, from October to the beginning of June, on old walls grown over with *Byssus*. I first found it on the ruins of the castle of Heidelberg, afterwards at Königstein in the Taunus mountains. The perfect insects made their appearance at the end of June and beginning of July.

I take this species for Hübner's *Tinea Pagenstecherella*, of which the original is no longer known. According to my copy of Hübner's work, fig. 265 suits tolerably well, only the spot towards the apex of the wing does not touch the costa, but it may easily be supposed to vary to that extent, as this spot is often attenuated above, and this attenuated portion may sometimes disappear altogether. Even the pale head is represented in the figure. (1830.)

INCURVARIA PROVECTELLA, n. sp., Heyden (E. Z. 1865, p. 103).

Capillis flavo-rufescentibus; palpis elongatis, flavis; alis anterioribus lucidulis, griseo-fuscis, maculâ angulo anali trigonâ flavo-albidâ.

Exp. al. 9 lin.

Nearly related to *I. vetulella*, Zetterstedt, but rather larger and the anterior wings narrower.

The antennæ are brown, rather shorter and thicker than in that species. Palpi long, as long as the head is broad, straight, unicolorous pale yellow. Tuft of the head reddish-yellow.

Thorax and abdomen grey-brown. Anal tuft and the adjoining hairs grey. Legs grey, the spurs and tibiæ rather paler.

Anterior wings rather shining, unicolorous grey-brown; only when examined with a lens a mixture of grey scales becomes visible. At the anal angle, rather further from the

apex of the wing than in *I. vetulella*, is a yellowish-white, triangular spot, attenuated above, which in one specimen reaches half across the wing, in the other only one-third. The cilia are of the same colour. The posterior wings are a little paler.

The underside is grey, with a yellowish gloss, the spot shines through faintly.

I received two ♂ specimens of this moth from Herr Dorfinger, of Sellmannsdorf, near Vienna, amongst other undetermined species from that locality. (1861.)

Nemophora pilulella, Hb., Heyden (E. Z. 1862, p. 173). The case is of an elongate oval form, often rather broader posteriorly, with the ends sharp-pointed, slightly arched on both sides. It consists of 4 or 5 crescent-shaped pieces of brown leaves fastened together, generally taken from dry bilberry leaves. The individual pieces of leaf are usually alternately pale and dark-coloured, so that the case has thereby a rather variegated appearance.

I found a number of cases in the middle of May on the Feldberg, in the Taunus mountains in fir woods. They were always under loose stones, and under the fir trees in their vicinity were few other plants except bilberry. Several larvæ were still crawling about in their cases.

The moths appeared at the beginning of June, the half of the thin yellowish pupa skin remaining protruding from the case. (1861.)

Adela Ochsenheimerella, Hb. Heyden (E. Z. 1862, p. 174). I found the cases at the same time and place with those of *Pilulella*. They were not distinguishable from them, but the moths appeared as early as the end of May.

I hope to be able, at a later date, to furnish a description of the larva. (1861.)

Swammerdamia apicella, Donovan, Heyden (E. Z. 1863, p. 107). The larva feeds at the end of June and beginning of July on sloe-bushes which are rather shaded, usually in small societies, in a rather extensive delicate web, devouring the leaves which are still young. It is lively and wriggles about much.

Under the web it changes to the pupa state in a spindle-shaped white cocoon, with two points at each end; the imago makes its appearance in the following year at the end of April and beginning of May.

Sw. apicella appears to be a local insect. Years ago I observed the larvæ on the hedges of the wilderness at Frankfort, where it has not been found of late years. On one entomological excursion, which I made with Herr Anton Schmid and Herr Mühlig in 1861, we found them tolerably plentiful in the woods at Eberstadt, near Darmstadt. (1836.)

Rhinosia horridella, Kuhlwein, Tr., Heyden (E. Z. 1860, p. 119). The larva lives in the middle of June on apple-trees; about Frankfort it is not abundant. It gnaws under a light web, the upper side of a leaf, which hence becomes rather curved. It forms a boat-shaped, paper-like, white cocoon, from which the imago escapes at the beginning of July. (1824.)

Exapate congelatella, Clerck, Heyden (E. Z. 1865, p. 104). I have bred the male and female moths from two different larvæ, which I here describe.

♂. Larva of almost equal breadth throughout, with the

back arched, dull, dark green, with two whitish longitudinal lines along the back; the sides paler, and pale warts, each bearing a hair. Head rather narrower than the second segment, shining, brown, spotted with yellowish. Second segment shining, greenish, the anterior edge broadly whitish; posteriorly it bears a brown spot twice interrupted by a pale line. Anal segment of the same colour. Anterior legs black.

♀. Larva of almost equal breadth throughout, rather flattened, with a greasy shining appearance, grey-green, with very small dark warts, each bearing a pale hair; on each side of the back is a faint paler longitudinal stripe. Head nearly as broad as the second segment, shining, yellowish-brown, spotted with black. Second segment shining, grey-green, with a broad black spot and two greenish longitudinal lines. Anal segment similarly coloured. Anterior legs black.

Both larvæ changed to the pupa state in a long, rather tubular, whitish cocoon, with open holes like a sieve; the cocoon was fastened to any substance on the ground. The pupa of the ♀ had short wing-sheaths.

The larvæ are not scarce about Frankfort and Mayence at the beginning of May between united leaves on the terminal twigs of privet (*Ligustrum vulgare*). The perfect insect makes its appearance in November. (1829.)

Depressaria propinquella, Tr. Heyden (E. Z. 1862, p. 174). The larva feeds about Frankfort at the end of June and beginning of July on the underside of the large leaves of the burdock (*Arctium lappa*), drawing with its silk a portion of the leaf into a longitudinal fold, in which it lives. I have also found it at the same time on *Serratula arvensis*; on this plant it folds a leaf upwards like a gutter.

It forms an oval, firm cocoon, mixed with earth, to undergo its change to the pupa state.

The imago appears at the end of July. (1836.)

Depressaria parilella, F. R., Heyden (1861, p. 34). The larva occurs singly on *Peucedanum oreoselinum* in the woods at Mombach, near Mayence. It spins the leaves together to a rather large, diffuse ball-like web, in which it changes to pupa at the beginning of June.

The imago appears at the end of July. (1855.)

Depressaria emeritella, Heyden (E. Z. 1861, p. 35). The larva occurs round Frankfort at the end of July between the united leaves of tansy (*Tanacetum vulgare*), and is very lively. It assumes the pupa state in its domicile, and the imago appears in the middle and end of August, also singly at the beginning of September. (1820.)

Enicostoma lobella, S. V., Heyden (E. Z. 1863, p. 343). The larva is found from the beginning to the middle of August on sloe (*Prunus spinosa*); it forms a thin white web (beneath which it lies) on the underside of the leaves, which hence are arched longitudinally. It is very lively and wriggling. It forms a firm, narrow, oval cocoon in which it changes to the pupa state.

The imago appears at the beginning of May and is abundant in this neighbourhood. (1825.)

Gelechia ferrugella, S. V., Heyden (E. Z. 1861, p. 35). I found the larvæ at the end of May in the wood at Falkenstein on the Taunus in pod-like or tubularly united leaves of *Campanula persicifolia*. It is extremely lively.

The pupa is not enclosed in a cocoon, but is fastened by some web attached to the last segment to a leaf or stem, and the imago appears in the middle of June. (1858.)

Gelechia Hippophaëlla, Schrank, Heyden (E. Z. 1865, p. 379). I found the larvæ at Ragatz on *Hippophaë Rhamnoides* in the middle of August, 1851, and in the middle of September, 1862. The perfect insects appeared in the middle of September, and in the first half of October. (1851.)

Gelechia pinguinella, Tr., Heyden (E. Z. 1860, p. 120). The larva is in this neighbourhood very abundant in May on poplars (*Populus nigra* and *pyramidalis*) between united leaves. It changes to the pupa state in the middle of June, generally gregariously under loose bark, beneath a grey web. The perfect insect appears in the middle of July. One finds it abundantly on the trunks of the poplars, running about quickly. (1822.)

Gelechia acuminatella, Sircom, Heyden (E. Z. 1862, p. 360) (*G. palustrella*, Heyden olim). I found the larvæ in October in meadows at Offenbach. It mines large irregular spaces along the mid-rib of the leaves of *Carduus palustris*, and changes to pupa in an oval earth-cocoon, from which the perfect insect makes its appearance at the end of April. (1840.)

Gelechia Brahmiella, n. sp., Heyden (E. Z. 1862, p. 175).

Alis anterioribus rufescenti-cinnamomeis; squamulis ob-

scurioribus mixtis; posticis griseis; palporum articulo ultimo nigro.

Exp. al. $5\frac{1}{2}$—$5\frac{2}{3}$‴. [The size in the Ent. Zeit., $2\frac{1}{2}$—$2\frac{2}{3}$, is a misprint.]

Anterior wings reddish-cinnamon brown, mixed with dark scales, which are more numerous on the costa and towards the apex of the wing; there are also dark scales on the cilia. Posterior wings grey, with long cilia. Head and thorax of the colour of the anterior wings. Front of the head more unicolorous yellowish. Antennæ about as long as the body, grey with darker annulations. Palpi externally of the colour of the head, internally yellowish; the pointed terminal joint black. Abdomen yellowish-grey, with yellowish hairs at the tip. Legs yellowish; the tarsi faintly annulated with darker.

In form this species resembles *Gelechia atriplicella*, F. v. R.

The larva is rather flattened, somewhat attenuated at both ends, transversely wrinkled, clothed with some short hairs, with a greasy-shining appearance, reddish-brown. Head shining black. Second segment with a shining, black, crescent-shaped spot divided by a slender pale longitudinal line. Anterior legs darker than the body.

It mines the pinnate leaves of the *Jurinea Pollichii*, Koch, which thence become inflated lengthwise. It eats out the parenchyma from the tip of the leaf, and the excavated portion becomes dry and yellowish-brown. The excrement remains collected in the tip of the leaf.

I first found the larva at Eberstadt and Jugenheim on the Bergstrasse, in October. It winters in the mine, which it does not quit till April; then under a slight web it changes to the pupa state.

The pupa is narrow, longish-oval, shining, brown, an-

teriorly rounded, with prone, slightly-raised sheaths, which leave the three last segments free. The last segment is blunt, clothed with very small hairs.

The imago makes its appearance towards the end of May.

The larva also occurs at other periods of the year, and I have met with it full fed at the end of May, also at the end of July and beginning of August. Of late years I have also found it on the sand at Mombach, near Mayence, a locality in which the long-ago deceased worthy Entomologist Brahm collected industriously and I have named this new species after him. (1849.)

GELECHIA SCRIPTELLA, Hb., Heyden (E. Z. 1861, p. 36). The very active larva feeds at the beginning of October on maple (*Acer campestre*) under a lobe of the leaf turned down on the upper side; here also it assumes the pupa state. The perfect insect makes its appearance in the first half of May of the following year.

In the neighbourhood of Frankfort I found it most frequently in the hedges at Offenbach and Oberrad. (1841.)

GELECHIA DIFFINIS, Haw., *scabidella*, Z., Heyden (E. Z. 1862, p. 174) This rather lively larva is not scarce at the beginning of July on *Rumex acetosella*, especially in the sandy places of this neighbourhood; it forms a fine tubular web on the seed-bearing stems, interwoven amongst the seeds, on which it feeds. In this abode it assumes the pupa state in a rather thicker cocoon. The imago appears at the end of July. (1836.)

Gelechia triparella, Z., Heyden (E. Z., 1860, p. 120, E. Z. 1862, p. 176). The very lively larva occurs every where in this neighbourhood in September and October, in serpentine silken galleries between oak leaves fastened one flat upon the other, of which it gnaws the cuticle. The change to the pupa state takes place in the web, and the imago is developed at the end of May or beginning of June of the following year. (1826.)

I have also found the larvæ on oaks as early as the beginning of July, but the perfect insects did not make their appearance till the middle of May of the following year.

Gelechia Rhenanella, n. sp., Heyden (E. Z. 1863, p. 343).

Alis anterioribus fusco-griseis, squamulis flavidis intermixtis, post medium fasciâ rectâ flavidâ.

Exp. al. $3\frac{1}{2}'''$.

Anterior wings rather short, brown-grey with yellowish scales intermingled; beyond the middle is a straight yellow fascia, not sharply defined. At the apex of the wing before the cilia are some very small yellowish spots. Cilia dark grey. Posterior wings grey. Head, thorax and abdomen grey-brown. Antennæ brownish-yellow, with darker annulations. Palpi rather long, yellowish; beneath black. Legs grey-brown; tarsi annulated with white.

It has rather the form of *G. basaltinella*, Z., but is only as large as a small *G. stipella*, H. [*nœviferella*, Z.].

I found the larva, which I have not described, at the beginning of July, at Mombach, near Mayence, in hedges, on the lower leaves of *Convolvulus sepium*, which appeared withered at the tips or at the edges.

The perfect insect appeared the beginning of August. (1845).

Gelechia Anthyllidella, Hb., Heyden (E. Z. 1861, p. 36). I first found the larvæ in the middle of October, on the slopes behind Offenbach, mining the leaves of *Anthyllis vulneraria*. The mine forms a greenish-white irregular blotch on the upper side of the leaf, generally near the leaf-stalk. When the larva becomes older it draws the leaf upwards near the leaf-stalk, into a pod-like form; the smaller leaves are doubled over to the tip and then appear inflated. Some of the larvæ quit their mines before winter, whilst others pass the winter in the evergreen leaves. The larva constructs a narrow, elongate, thin, pale-grey cocoon outside the leaves, and changes in it to the pupa state in April. The imago is developed in the middle of May. Doubtless there is a second brood. I have also found the larvæ abundantly at Jugenheim in the Odenwald. (1855.)

Gelechia Brizella, Treitschke, Heyden (E. Z. 1860, p. 120). The sluggish larva is found in June and the beginning of July in the flower heads of *Statice armeria*, of which it eats the unripe seeds. One often finds several larvæ in one flower head; in this neighbourhood we find the larva wherever the plant occurs. In the larval abode it spins a slight cocoon and then assumes the pupa state; towards the end of July and in August the imago is produced.

In the autumn we find the larvæ of the second brood, from which the moths are developed in the May of the following year. (1827.)

Ypsolophus Schmidiellus, Koch, Heyden (E. Z. 1865, p. 380). This occurs throughout June about Frankfort, between spun-up leaves of *Origanum vulgare* and

Mentha arvensis; between these leaves in a slight cocoon it also changes to the pupa state. The imago is developed towards the middle of July. The larva is extremely lively. (1842.)

The name *Schmidiellus* must be retained as the oldest (1848—see Isis, 1848, p. 954); *Durdhamellus*, Stainton, dates from 1849, and *Quadrinellus*, H.-S., from 1853, though this latter had been used by Fischer von Röslerstamm (as a manuscript name) much earlier.

ANCHINIA GRISESCENS, Frey, Heyden (E. Z. 1863, p. 344). I found the larva at the beginning of July, on the Alp Laret, near St. Moritz, in the Upper Engadine, between united leaves of *Daphne alpina*. The pupa, as in the allied species, sits perpendicularly on a twig. The perfect insects appear the beginning of August. (1852.)

ŒCOPHORA DEVOTELLA, n. sp., Heyden (E. Z. 1863, p. 107).

Capite, thorace, alis anterioribus luridis, ciliis fusco-nigris; alis posterioribus fusco-nigris.

Exp. al. $5\frac{1}{2}'''$.

Head luteous, with the face smooth. Antennæ rather shorter than the body, brown. Palpi as long as the head, yellowish-brown, with appressed scales; the last joint of the same length as the penultimate, but narrower. Thorax and anterior wings almost lustreless, luteous; the latter with brown-black cilia. Posterior wings brown-black. The underside of the wings brown-black. Abdomen brown, mixed with paler scales at the sides. Anal tuft reddish-yellow. Legs brown; the tarsi beneath reddish-yellow.

The larva is short, thick, attenuated at both ends, lustre-

less, clothed with isolated short hairs, yellowish, with traces of five faint longitudinal stripes, of which the central one is the most distinct and formed of separate spots. Head short, heart-shaped, narrower than the second segment, shining black-brown, with an angulated pale line pointing backwards. The second segment is rather narrower than the third, shining, divided by a white longitudinal line, its hinder margin is brown on both sides; the anal segment is somewhat depressed. Legs annulated with dark.

The pupa is elongate-oval, thick, smooth, shining, brownish-yellow. Head blunt, projecting beneath rather like a knob. The sheaths of equal length, only with their tips rather projecting, leaving four segments free. The penultimate segment is long, attenuated posteriorly; the terminal segment small, short, heart-shaped, terminating in a point.

I found the larvæ at the end of August and beginning of September in the Höllenthal, in the Black Forest, in the umbels of *Heracleum sphondylium*, the seeds of which it spins together with a slight web. It is sluggish, and feeds on the seeds into which it bores. In the first half of September it forms a slight cocoon in its dwelling, and assumes the pupa state; the pupa is also rather sluggish.

The perfect insect makes its appearance in the second half of June in the following year.

Œcophora devotella is allied to *Flaviguttella*, F. v. R., but the last-named is generally rather larger, and besides the reddish-yellow spots on the anterior wings, their ground colour is as dark as that of the posterior wings. (1862.)

Œcophora statariella, n. sp., Heyden (E. Z. 1863, p. 108).

Antennis apicè albidis; capite et thorace fuscescentibus;

alis anterioribus luridis, maculis quatuor obsoletis dilutioribus; alis posterioribus griseo-nigris.

Exp. al. $4\frac{1}{2}'''$.

Head almost smooth, brownish; face and hinder margin more yellowish. Antennæ rather shorter than the body, dark brown; the last third whitish-grey. Palpi as long as the head, brown; at the base yellow; the last joint not narrower. Thorax grey-brown. Anterior wings dull luteous, with the cilia of the same colour, and four hardly perceptible paler spots; the first in the middle of the inner margin, the second on the disk above the anal angle.

Posterior wings grey-black. Underside of the wings blackish; the cilia of the anterior more yellowish. Abdomen above black-grey; beneath, as also the breast, silvery-grey. Anal tuft reddish. Legs brownish-grey, rather paler above; tarsi annulated with reddish.

I have only found this moth twice in the middle of July, on the Alp Laret, at St. Moritz, in the Upper Engadine. It is nearly allied to *Œcophora devotella*, but easily recognized by its much smaller size, whitish tips to the antennæ, and the four faint spots on the anterior wings. Probably in some specimens those spots come out more distinctly. (1862.)

Œcophora tragicella, n. sp., Heyden (E. Z. 1865, p. 380).

Alis anterioribus nigro-cinereis, squamulis albidis mixtis, lineolis duabus angustis, longitudinalibus, abbreviatis, obsolete nigricantibus.

Exp. al. $10'''$.

Allied to *Œc. pseudospretella*, Stainton, with which I am

not personally acquainted; Herrich-Schäffer gives it as *Gelechia pseudospretella*, vol. v. p. 181, fig. 627.

Anterior wings broad, rather silky, dark-grey, mixed with paler scales, which become particularly abundant towards the apex of the wing. A faint blackish longitudinal line runs along the disk from the middle of the wing to the apex; a little before and below the middle of the wing is a short faint longitudinal line, and another still more indistinct at the base of the wing, not far from the costa. Before the cilia, which are nearly concolorous with the wings, and also mingled with darker scales, is a row of indistinct, darker spots, which here and there unite into a line. The underside is unicolorous grey. Posterior wings broad, rather pointed, little paler than the anterior wings; the veins are rather darker, the tolerably long cilia of the same colour. The colour of the underside is rather paler than the anterior wings.

Head with large, appressed, pale-grey scales, sparingly mixed with darker ones. Palpi long (about as in *Œcophora sulphurella*), recurved, narrow, grey; the base of the terminal joint as well as the fine-pointed tip yellowish-white. Antennæ $\frac{2}{3}$ the length of the anterior wings, thin, dark grey, faintly annulated with paler. Thorax dark grey, anteriorly with a narrow, darker, transverse line; the sides rather paler. Abdomen grey, clothed with large rounded scales; the terminal segment yellowish, with a broad protruding ovipositor. Legs long, grey, the darker tarsi narrowly annulated with paler.

I only found a single specimen at the end of July, on a lichen-covered fir-tree at St. Moritz, near the mineral springs. A second specimen escaped. (1851.)

Œcophora Knochella, Fab., Heyden (E. Z. 1860,

p. 121). I found the larvæ in the middle of June, in the lower wood at Frankfort, on *Cerastium semidecandrum*, amongst a large, thin web on the stem near the root. The larva changed to the pupa state in a slight thin cocoon, and the moth appeared the beginning of July. (1857.)

Œcophora Noricella, F. v. R., Heyden (E. Z. 1860, p. 121). I found the larvæ in the middle of July, on the mountains at Rippoldsau, in the Black Forest, on *Epilobium angustifolium*, of which they draw together the terminal leaves and flowers to a cluster. It changes to the pupa state in a fine, simple cocoon, and the moth is developed the beginning of August. (1856.)

Acrolepia Arnicella, n. sp., Heyden (E. Z. 1863, p. 109).

Capite, thorace, abdomineque pallidis; alis anterioribus flavescenti-albidis, fasciis incompletis, maculis atomisque lutescenti-brunneis, post medium punctulis nigris; alis posterioribus albidis, maculis marginalibus obsolete griseis.

Exp. al. $6\frac{3}{4}'''$.

Head, thorax and abdomen yellowish-white; the last joint of the palpi with two indistinct brownish rings; antennæ annulated with brown.

Anterior wings broad, yellowish-white, with scattered yellowish-brown atoms, which have a tendency to form very narrow fasciæ in the paler intervening spaces. The yellowish-brown fasciæ have often a tendency to separate into spots. In the middle is an inwardly-curved fascia, in the middle of which is a small transverse black streak. Beyond this central fascia to the apex of the wing the yellowish-brown colour is more predominating; and here on the outer margin

are four still darker spots, and in the middle two or three black spots in a transverse row. The dark cilia are intersected by two paler lines, and have a pale spot in the middle.

Posterior wings whitish, towards the apex rather yellowish, with faint grey spots on the margins. Cilia white, with two darker intersecting lines, and a blackish spot at the apex of the wing.

The underside of the anterior wings is more unicolorous yellowish-grey, with alternately yellowish and blackish spots on the outer margin, and blackish cilia interrupted by the pale spot.

Underside of the posterior wings whitish. Femora, tibiæ and tarsi yellowish, annulated with darker.

The larva is rather thick, somewhat flattened, rather attenuated at each end; the segments deeply incised, each with a rather protruding small wart at the side, rather shining, smooth, yellowish-white. Head almost as broad as the second segment, heart-shaped, pale yellow, with the mouth brownish. The second segment is narrower than the following segments, of the same colour, posteriorly with a deep black, middle spot, divided by a pale longitudinal line.

The anal segment is very small, pointed posteriorly, shining, deep black. The stigmata appear as very small black spots. Anterior legs slightly spotted with dark; the very small anal prolegs with a grey spot.

The pupa is rather slender, somewhat attenuated at each end, with appressed sheaths of almost equal length, which leave the five last segments free, with slight lustre, rather smooth, yellowish-brown; the anterior end is rather abbreviated; each segment bears a small spine on the sides, a little before the middle. The last segment is rather abbreviated and emarginate, with sharp edges on each side and clothed with some bristles.

The larva mines the leaves of *Arnica montana* in the middle of May, forming long, irregular tracks. These are yellowish; with small scattered grains of dark excrement. The larva quits its mine towards the end of May, and bores beneath the epidermis on the underside of another leaf, forming an elongate oval burrow, which is scarcely perceptible from the upper side; in this it changes to the pupa state in a slight, white cocoon, not made with open meshes.

In the first half of June, the moth makes its appearance. I first found the larva in the woods at Ober-Ursel in the Taunus.

Acrolepia Arnicella, on account of its pale colour and the shorter, broader, anterior wings, is not to be confounded with *A. granitella* and *A. Solidaginis;* but is far more nearly allied to *A. cariosella.* But from this it may also be readily distinguished by the different position of the spots on the costa of the anterior wings, by the black spots on them, and by the paler, spotted posterior wings.

The figure given by Fischer von Röslerstamm of *Acrolepia granitella*, in Plate 8 of his work, represents the anterior wings so broad, and so much difference in the colouring, that it agrees with no specimens I have seen from different localities. Either the figure is incorrect, or, what is also very possible, there are still some allied species confused. A careful observation of their metamorphoses, and of the different food-plants, is, therefore, much to be desired. That of *Acrolepia cariosella* I will furnish afterwards.

The *Acrolepia cariosella* found by Frey, on the Bernina, in the Upper Engadine, I consider distinct from that species, being distinguished by the brown-yellow central fascia standing perpendicularly on the inner margin of the anterior wings. I have named it, in my collection, *Acrolepia adjectella.* (1862).

Cedestis Gysseleniella, Kuhlw., Heyden (E. Z., 1865, p. 105). This is not scarce on fir trees (*Pinus sylvestris*) at Frankfort, in the middle of May.

The moth makes its appearance the beginning of June. (1828.)

Ocnerostoma piniariella, Z., *argentella*, Heyden (E. Z. 1860, p. 122). The larva feeds in April and the beginning of May, in the needles of the fir (*Pinus sylvestris*), which it eats out from the tip downwards, leaving its excrement behind it. Generally, the inner substance of one needle is sufficient for it; but if this is not the case, it enters another needle. At the spot where it leaves off feeding it makes a small hole in the needle for its exit, and then spins some fresh needles firmly and tubularly together, forming between them a thin white cocoon, in which it changes to the pupa state. The imago is developed in the middle of June, and we often find it sitting motionless on the needles.

At the beginning of August I have taken perfect insects, probably of a second brood. Although the larva sometimes occurs very plentifully about Frankfort, it is not all injurious. It feeds only on the needles of the previous year. Many years ago I distributed many specimens amongst other Entomologists, under the name of *Tinea longiventrella*. (1818.)

Gracilaria hemidactylella, S. V., Heyden (E. Z. 1862, p. 360). The larva feeds at Darmstadt on *Acer platanoides* and *Pseudoplatanus*, more rarely on *Acer campestre*, at the end of August and beginning of September, in a cone formed at the edge of a leaf; when the larva is full grown this cone is fully an inch long.

Either on the upper or under surface of a leaf in a small

hollow, or on some other substance, the larva forms a flat, smooth, elongate-oval, yellowish-white, transparent, paper-like cocoon, through which one can distinguish the unicolorous, greenish-white pupa.

The perfect insect appears at the end of September, as a second brood. (1841.)

Gracilaria Fidella, Reutti, Heyden (E. Z., 1862, p. 360). The larva feeds, at the end of August, on hop (*Humulus Lupulus*), at first mining a pale spot in the fork between two ribs of the leaf, afterwards beneath a piece of the edge of the leaf, turned down towards the under side, and which has more or less of a conical form. When full fed it quits this habitation, and forms on the underside of that or some neighbouring leaf an elongate-oval, paper-like, flat, shining, white cocoon, with a faint longitudinal keel. In the first half of September the imago is excluded, the pupa skin being drawn half out of the cocoon. I found the larvæ and pupæ this year, first at Freiburg in the Breisgau, on wild hops; then, a little later, at Speyer, on cultivated hops. As far back as 1856, I had noticed at Badenweiler, in the Black Forest, the empty cocoons on the hops in August; hence there must be two broods.

Reutti has well described this species, which has not been mentioned by recent authors, in his Lepidopterous Fauna of the Grand Duchy of Baden. Although Herr Reutti had sent me this species in 1851, and I had then determined it for him as a new species, I had so completely overlooked the circumstance that I had already placed the specimens, bred this year, in my collection as a new species, with the name *Gracilaria Humulella*.

It has afforded me much pleasure now to have discovered

its natural history in the same locality in which Reutti captured the imago. (1861.)

Gracilaria limosella, Dup., Heyden (E. Z., 1862, p. 362). In company with Herr Anton Schmid and Herr Mühlig, I found the larva in the middle of September, in the wood at Mombach, near Mayence, on *Teucrium Chamædrys*. It mines the leaves, which hence appear swollen on the upper side, whilst the underside is drawn together in folds. It changes to the pupa state within the mine, and the moth appears at the end of June and beginning of July. There is an earlier brood. (1858.)

Gracilaria pavoniella, Metzner, Heyden (E. Z. 1861, p. 37). I found the larva in the middle of October, at Jugenheim, on the Bergstrasse, mining the leaves of *Aster amellus*. The mine is large, often an inch long, generally occupying the entire breadth of the leaf towards the tip; it is reddish-brown. In the middle of it, along the mid-rib, is a more or less inflated, fusiform space, on the upper surface of the leaf, with a longitudinal keel; beneath this is the usual abode of the larva. It frequents plants which grow under the shade of trees, and it is only in the larger radical leaves that we sometimes find two mines in one leaf. It only rarely happens that the mine is on one side of the mid-rib.

Before winter the larva becomes of a lemon-yellow, but does not quit its mine till March or April. In some convenient corner it spins an oval, flat, whitish, transparent cocoon. The imago appears in the middle of May. (1859.)

(E. Z. 1862, p. 176.) Frey has already described this larva in his "Tineen und Pterophoren der Schweiz;" he found it, however, on *Margarita Bellidiastrum*. Perfect insects are often described over and over again, and it is not

inadvisable that several original descriptions of the earlier stages should also be extant.

Gracilaria Kollariella, Zell., Heyden (E. Z. 1862, p. 362). The larva mines the leaves of the broom (*Sarothamnus scoparius*), more rarely those of *Genista Germanica;* it is found near Frankfort on the Taunus, and in the Odenwald, in the middle of June. The mine is a large, grey-brown spot, which often covers an entire leaf. The larva quits one leaf to penetrate into another. At the end of June it quits the mine; it spins on the upper side of a leaf, which is a little curved upward lengthwise, an elongate, flat, paper-like, transparent, yellowish-white cocoon, from which the imago makes its appearance in the latter half of July.

The larvæ of a second brood are found from the middle of September to the middle of October. When young, it is more yellowish-white, and mines at first pale, finger-like tracks, which afterwards occupy the entire surface of the leaf, from which it ejects its excrement. In the middle of October it quites the mine and makes its cocoon, which it fastens to any convenient object, and winters within it. (1830, 1859.)

Ornix Pfaffenzelleri, Frey, Heyden (E. Z. 1863, p. 344). Professor H. Frey having first called my attention to it, I found the larva at St. Moritz, in the Upper Engadine, on *Cotoneaster vulgaris.* It feeds at the end of June and beginning of July within a leaf folded together upwards, devouring the upper surface of the leaf. It changes to the pupa state beneath a turned-down edge of the leaf, in a parchment-like, brownish, narrow cocoon.

The cocoons which I brought home with me to Frankfort

furnished the perfect insects the beginning of August; one even made its appearance in October. I also saw some of the perfect insects on the wing early in July.

I thought I had collected a tolerable supply of this pretty species, but many of the leaves which were folded together in the same way produced only *Teras Abildgaardana*. (1862.)

Coleophora conspicuella, Zell., Heyden (E. Z. 1863, p. 345). The larva, which is full fed in the middle of July, occurs locally at Frankfort and Darmstadt, on *Centaurea Scabiosa*. Before it fixes itself for its change to the pupa state, it often crawls about for a long while, and far away from its food plant.

The perfect insect generally makes its appearance in the first half of August; though one may still find feeding larvæ singly at that time. (1842.)

Cosmopteryx Zieglerella, Hb., Heyden (E. Z. 1860, p. 122). The larva mines the leaves of the hop (*Humulus Lupulus*), from the end of July to the middle of August. The mines are mostly linear, but divided into several branches, and are pale brown. They always run along the ribs on the upper side of the leaves, and are internally carpeted with white silk. The larva sometimes quits its mine, and enters the leaf at another spot.

The larva passes the winter outside the mine, in a flat, narrow, thin, white cocoon, and changes in the following spring to the pupa state, and the imago makes its appearance the beginning of June. At Frankfort it only occurs in isolated localities, but is there very abundant.

According to its habits it is never likely to become in-

jurious, even should it become abundant in hop gardens. Here I have only met with it on wild hops. (1840.)

Laverna Raschkiella, Zell., Heyden (E. Z. 1862, p. 364). The larva occurs from the middle of June to the beginning of July, and then again from the middle of September to the middle of October, mining the leaves of *Epilobium angustifolium*. When young the mine is narrow, more or less serpentine, but afterwards becomes broader, often occupying the entire half of the leaf. The full-fed larva quits the mine, and spins a rather flat, oval, paper-like, yellowish-white cocoon, which is sometimes furnished with a longitudinal keel, and therein assumes the pupa state. The imago is developed in May and early in June, and the second brood at the end of July and beginning of August. (1837.)

I have bred this species from larvæ from the Frankfort wood, from the Taunus mountains, from Auerbach in the Odenwald, from Rippoldsau in the Black Forest, and from the neighbourhood of Mayence.

Laverna phragmitella, Stainton, Heyden (E. Z. 1863, p. 111). During an excursion made by several Entomologists to the peat-trenches at Pfungstadt on the 30th of March, 1862, Lieutenant Saalmüller found the larva of this species (not previously detected in Germany) in the last year's heads of *Typha latifolia*. They live gregariously in multitudes in the wool amongst the seeds, with no peculiar web, and appeared then to be requiring no more nourishment. They were very sluggish, and let themselves drop by a thread.

In May the larva spins among the seed-wool a narrow,

elongate, thin, white cocoon, in which it assumes the pupa state. In April I had found in the same peat-trenches some larvæ, which had eaten their way into the dry *Typha* stems. Before spinning up, the larva crawls about in a very restless manner.

The perfect insects come out all through the month of June. They sit with the wings flat and narrow, but slightly roof-shaped. When disturbed they often slip about with their backs downwards, without flying. (1862.)

LAVERNA DECORELLA, Steph., *Mompha divisella*, Heyden (E. Z. 1861, p. 37, 1862, p. 362). The larva lives in a more or less rounded, gall-like swelling, sometimes as large as a pea, on the stem of *Epilobium alpinum*, generally at the base of the leaf-stalk. One often finds several galls on one stem. It changes to the pupa state in an elongate, parchment-like whitish cocoon, within the very confined space of the gall; from the upperside of the gall a portion of the cocoon projects tubularly through a small hole, through which the perfect insect makes its escape. A gall found in the middle of October on the Bergstrasse at Auerbach, produced a moth the day following. It is probably double-brooded, and may also occur near Frankfort and on the Taunus mountains. (1860.)

At the beginning of August I found the larva and several pupæ in the former locality on the Bergstrasse at Auerbach. The moths appeared from the middle to the end of August. It would seem, therefore, that in this species the time of appearance differs.

I have also found empty galls in the Frankfort woods and on the Taunus; and the larvæ at Badenweiler in the Black Forest. (1861.)

Chrysoclista Schrankella, Hb., Heyden (E. Z. 1863, p. 345). I found the larva at the end of July at Rippoldsau in the Black Forest on *Epilobium parviflorum*, in the leaves of which it mines great blotches. I only found it once, by the side of a water-course, but there were many mines on one plant. It spins up on the underside of the leaves in a flat, elongate, thick, white cocoon.

The moth makes its appearance in the first half of August, leaving the pupa skin inside the cocoon. (1856.)

Stagmatophora pomposella, Zeller, Heyden (E. Z. 1865, p. 381). The larva may be found as early as the beginning of May, mining yellowish blotches in the leaves of *Gnaphalium arenarium*, at the same time as *Bucculatrix Gnaphaliella*. This last spins an elongate white cocoon ontside the mine, and therein undergoes its change to the pupa state. *Stagmatophora pomposella* changes to the pupa within the mine, in which the pupa skin also remains behind; whereas in *Bucculatrix Gnaphaliella* the pupa projects from the cocoon.

The imago makes its appearance at the end of June and beginning of July. (1834.)

Stephensia Brunnichiella, L., Heyden (E. Z. 1862, p. 363). The larva mines the leaves of *Clinopodium vulgare* at the beginning of July. The mine begins at the tip of the leaf and often extends as far as the middle. The mined portion of the leaf has a brown, crumpled appearance. When full fed it quits the mine, and draws down a small portion of the edge of a neighbouring leaf, making therewith a small fold, under which it assumes the pupa state in a small, paper-like, whitish cocoon.

The perfect insect appears at the end of July and beginning of August. (1861.)

As far back as 1826 I found the larvæ of the autumn brood in this vicinity, but no moths were reared from them the following spring.

Elachista Poæ, Douglas, Heyden (E. Z. 1861, p. 38). The larva is full fed at the end of March and beginning of April; it mines the leaves of *Glyceria spectabilis*. The long mine, sometimes of a reddish colour, is not easily perceived in the red-brown leaves. The larva quits its mine and assumes the pupa state under as light, white web between the longitudinal groove of the leaf, which is thereby rather more drawn together.

In the neighbourhood of Frankfort this species is local, and the imago makes its appearance in the latter half of April. (1860.)

Tischeria Gaunacella, F. v. R., Heyden (E. Z. 1865, p. 105). In the latter half of June the larva occurs at Frankfort and Mayence in the leaves of plum-trees (*Prunus domestica*). The mine forms a long blotch on the upper-side, generally at the edge of the leaf. When the larva is more nearly full fed, the edge of the leaf is drawn over on the upper side. It changes to the pupa state within the mine, and the moth makes its appearance in July. A second brood occurs in September and October, producing moths in the May of the following year. (1835.)

Tischeria Dodonæa, Stainton, Heyden (E. Z. 1862, p. 364). The larva mines brown blotches, which have eccentric darker rings, in the leaves of oaks at Frankfort and

on the Taunus in September: the entire mine is of irregular form and about half an inch across. The larva winters in a whitish cocoon in the lenticular portion of the mine. Sometimes the so different-looking mines of *Complanella* and *Dodonæa* occur in the same leaf. The imago makes its appearance in the first half of May.

Although I have been unable to find any satisfactory character to distinguish the perfect insect from *T. complanella*, there can be no doubt that it is really a distinct species. *Dodonæa* is always smaller than the average size of *Complanella*, though individual specimens of the latter may be found just as small.

I have for many years distributed this species amongst Entomologists under the name of *T. Frausella*, and it is also mentioned under that name in the Entomologist's Weekly Intelligencer for 1858, vol. iv. p. 175. (1846.)

Lyonetia frigidariella, Heyden (E. Z. 1861, p. 38). I found the larva at the end of July on smooth leaved willows by the Lake of St. Moritz in the Upper Engadine; it mines large, long, brown blotches in the leaves.

When full fed it spins on the underside of a leaf a cocoon similar to that of *Cemiostoma scitella*, but larger, which it places along the mid-rib, and the tip and base of the leaf are slightly drawn towards each other. The elongate pupal cocoon has a large four-lobed covering, which is not so thick, and therefore more transparent than in *C. scitella*. The perfect insect makes its appearance the beginning of August.

As the pupa state is not passed in a hammock as in *Lyonetia prunifoliella* and *L. Clerckella*, but as in *Cemiostoma scitella*, *Laburnella*, and *Susinella*, beneath a

quadripartite covering, future more accurate investigation must decide, whether the moth truly belongs to the genus *Lyonetia*. (1852.)

Cemiostoma Susinella, H. S., Heyden (E. Z. 1860, p. 123). The larva lives gregariously in July and August, mining large brown irregular blotches in the leaves of the aspen (*Populus tremula*). It is abundant in the woods about Frankfort and in the Taunus. More rarely it occurs in the leaves of *Populus Italica*, on which I have found it at Mombach.

When full fed it quits the mine and spins a white cocoon, with a quadripartite covering like that of *C. Laburnella*.

The imago makes its appearance in the May of the following year. (1825.)

Cemiostoma Wailesella, Stainton, Heyden (E. Z. 1863, p. 346). The larva mines the leaves of *Genista tinctoria* from the middle of June to the beginning of July. The mine is at first a small, round, brown spot, from which issues a fine linear track, along which the larva, still very small, proceeds to make a large mine, at first also round, but afterwards occupying the entire tip of the leaf, and often, indeed, covering the whole leaf. The black-brown excrement lies in this mine in great plenty, and forms indistinct concentric circles. If the larva finds a sufficiency of food in the leaf, it only eats the upper half of the parenchyma, so that the underside of the leaf remains green. Between two leaves, or between other objects, the larva spins a small, white, boat-shaped cocoon, with a large four-lobed covering, as in several allied species.

The imago appears the beginning of July. (1855.)

Cemiostoma lustratella, H. S., Heyden (E. Z. 1860, p. 124). The larva feeds from the middle of September to the middle of October, in the leaves of *Hypericum montanum*, more rarely in those of *H. perforatum*, where frequently several individuals from a common blotch take radiating mines towards the edges of the leaf. Towards the end of October the larva makes in its abode a small flat white cocoon, pointed at both ends. Only very rarely is the cocoon made on the outside of the leaf.

At the beginning of May of the following year the moth makes its appearance, tearing a small slit in the epidermis of the leaf, but the pupa skin remains entirely within the cocoon. The moth is sluggish, has a large body in proportion to the size of the wings, and flies little.

The species appears to be very local, and I have only found it in isolated spots in the Frankfort wood. (1830.)

Subsequently I have also found the first brood of this insect, of which the larvæ appear in the middle of June, and the imago in the first half of July. In this summer brood it very frequently happens that the larvæ spin their cocoons outside the mine. It is very curious that this insect has almost the same mode of life as *Nepticula Septembrella*, which is likewise a miner of *Hypericum* leaves.

In the case of *Cemiostoma scitella*, we have also two broods in Germany, whereas in England there is only one. I first found the larvæ of this very common species in June and July, the moths coming out in July and August. The larvæ of the second brood appear from the end of September to the middle of October, and the imago in the May of the following year.

The doubt still entertained by Stainton whether the species described by Göze in the Naturforscher, Stück 5, p. 62, is

identical with *Scitella*, is hence, in conjunction with the unmistakeable figure, Pl. II. figs. 11—15, entirely dispelled.

Bucculatrix cidarella, Zeller, Heyden (E. Z. 1862, p. 365). The larva is found sparingly around Frankfort at the beginning of October, on the outside of alder leaves, on the underside of which it gnaws isolated blotches.

It changes to the pupa state in a caraway-seed shaped white cocoon, with three raised longitudinal lines, and the imago is developed in the middle of June of the year following, when the half of the brown pupa is protruded from the cocoon. (1846.)

Bucculatrix fatigatella, n. sp., Heyden (E. Z. 1863, p. 112; E. Z. 1865, p. 106).

Grisea, alis anterioribus maculis 4 suboppositis albidis; inter maculas suturales, maculâ nigricante.

Exp. al. $3\frac{3}{5}'''$.

Antennæ and eye-caps dark grey. Head grey, with the tuft almost black; face shining, silvery-grey. Anterior wings coarsely scaled, lustreless, grey, mixed with darker scales; on the costa are two whitish spots, not sharply defined. On the inner margin are likewise two whitish spots, obliquely opposite to the costal spots; the anterior of these is rather prolonged along the inner margin. Between these last two spots is a small blackish spot composed of raised scales. Towards the apex of the wing is a small whitish spot, divided by blackish scales, which goes obliquely towards the inner margin. The posterior wings and all the cilia are grey. Thorax, abdomen and legs shining grey.

Size of *Bucculatrix Frangulella*, but the anterior wings narrower and of more even width.

I found this species several times on the Alp Giop, at

St. Moritz, in the Upper Engadine, on larch (*Pinus larix*); but on account of the stormy weather was only able to secure three specimens. *Alnus viridis* grew near the spot, and may perhaps be the food plant of the larva. (1862.)

In the middle of July, 1863, I found on the Bernina, under stones, the white, three-ribbed cocoons of this species; they were by no means scarce, but were nearly all empty. Only three of them furnished me with the perfect insect, which varies in that the white spots of the anterior wings are more or less obsolete. In the vicinity of these cocoons grew only *Chrysanthemum alpinum;* hence this is doubtless the food of the larva.

Bucculatrix maritima, Stainton, Heyden (E. Z. 1861, p. 39). During the Annual Meeting of the Oberhessischen Gesellschaft für Natur- und Heilkunde, at Salzhausen on the 2nd of July, 1859, I discovered by the graduation-house of the salt-works, on *Aster tripolium*, the larva of this species, which had previously only been found on the sea-coast of England.

The larva has quite the habits of the allied species. When young, it mines the leaves, in narrow, expanding, slightly curved galleries; a darker excremental line is perceptible in the centre of the track. It casts its skin outside the mine, for which purpose it spins an oval, flat, thin, white cocoonet, which it afterwards quits through a small hole. It afterwards feeds externally on the under surface of the leaves, and gnaws elongate spots in the substance of the leaf, so that only the upper epidermis remains untouched.

On the same spot or on the stem the larva constructs a caraway-seed shaped white cocoon, with five more or less stout longitudinal ribs. At its two ends a thinner, flatter continuation is perceptible. The larvæ changed to the pupa state the beginning of July, and the moths appeared the be-

ginning of August. Doubtless there is a second brood, which, however, I could not observe. The moths vary much in the sharpness of the markings on the anterior wings, and specimens that are almost of an unicolorous yellowish, or are very faintly marked, are the most plentiful. (1859.)

Bucculatrix Boyerella, Dup., Heyden (E. Z. 1863, p. 112). This larva in its entire appearance is rather different from those of other species of the genus. It gnaws the leaves of the elm at the end of August, and, like the allied species, moults beneath a flat cocoonet. To undergo its change to the pupa state, it constructs, beneath a rather flat, thin, oval, yellowish-grey silken covering, its grey, slightly ribbed, caraway-seed shaped cocoon. The perfect insect appears in the following summer. Around Frankfort, and subsequently also found at Mayence. (1841.)

Nepticula Fragariella, n. sp., Heyden (E. Z. 1862, p. 365).

Capillis nigro-fuscis; conchula flavescens; alis anterioribus elongatis, angustis, nitidis, nigris, basin versus cupreis, fasciâ post medium aureo-argenteâ, nitidissimâ; tarsis griseis.

Varietas: capillis anticis rufis.

Exp. al. $2\frac{1}{2}-2\frac{2}{3}'''$.

Tuft of the head narrow, rather smooth, black-brown. Palpi with long hairs, brownish-yellow, at the sides black. Eye-caps large, yellowish. Antennæ black, with the tips rather paler.

Anterior wings long, narrow, with fine scales, shining black, with some coppery lustre; the base for one-third of the length of the wing is bright coppery-red, with the inner margin rather black; beyond the middle in the black

ground colour is a very shining, silvery-golden fascia, which, on account of the narrowness of the wings, is nearly as broad as long, and forms therefore a nearly quadrate spot, a little attenuated posteriorly. The black space which precedes the fascia is nearly as broad as it. The cilia broad, grey. Posterior wings and their cilia grey.

Thorax coppery-red. Abdomen black with a metallic gloss and the anal tuft reddish. Tarsi clothed with grey hairs.

The colour of the head is alike in both sexes; but amongst them I bred one small female specimen, in which the front part of the tuft is ferruginous.

This species is distinguished from all with which I am acquainted, by the extraordinarily long and narrow anterior wings.

The larva is shining, unicolorous, brownish-yellow, with the head and second segment more shining and rather darker; on the head we see, as in the allied species, two diverging darker lines, and the mouth is also darker.

I found the larva at the end of October, on the Bergstrasse at Jugenheim, on hill slopes, on wild plants of *Fragaria vesca* growing in the shade. But I fancy I also have seen the mines of this species at Frankfort and in the Black Forest.

The mines are very long, many times twisted here and there; they begin very fine, and then for a considerable distance retain the same width; they are yellowish-grey, with a darker excremental track in the middle. Sometimes two or three larvæ mine in the same leaf, and then the mines form a dense tangle.

The cocoon is oval, rather flat, pale brown. It is often attached by the larva to the underside of the leaf.

I bred the imago in the warm room as early as the end of March. (1861.)

Nepticula Agrimoniæ, Frey, Heyden (E. Z. 1861, p. 41). The larva is found in October, and as late as the beginning of November, in the individual pinnate leaflets of *Agrimonia Eupatoria*, in which it mines long, tortuous, rather broad brown galleries, which often expand to a large blotch, and sometimes occupy the entire leaflet, especially if it be tenanted simultaneously by two or three larvæ. It does not quit the mine, but makes within it, generally in one of the serratures of the leaf, a flat, oval, yellowish-white or brownish cocoon. It is very abundant in shady woods at Frankfort and Offenbach.

The moth makes its appearance at the end of May. (1858.)

Nepticula Freyella, Heyden (E. Z. 1862, p. 366). The larva mines the leaves of *Convolvulus Sepium*, more rarely those of *Convolvulus arvense*. The mine begins very narrow, and generally twists about backwards and forwards, so as to form a small blotch. The track is of a brownish-yellow, and a fine reddish-brown excremental line runs along the middle. The larva within the mine appears rather dark brown. The cocoon is oval, flat, brownish-yellow.

The larva is found in the second half of August, and stragglers up to the middle of September. The perfect insect appears at the end of May and beginning of June.

I have also found empty mines in July, so that it is certainly double-brooded.

Nepticula Freyella appears to be a local species; I first found the larva, in company with Professor Frey, in September, 1856, at Seckbach, near Frankfort. Afterwards I found it in other localities in this neighbourhood, and rather plentifully at Soden.

This insect was first described by me in the Entomologist's

Weekly Intelligencer for 1858 (vol. iv.), p. 175; it is therefore by error that it appears in Staudinger and Wocke's Catalogue of European Lepidoptera as *Freyella*, Stainton. I have named this species after my worthy friend, Heinrich Frey, Professor at Zürich. (1857.)

Nepticula æneofasciata, Frey, Heyden (E. Z. 1861, p. 39). I found the larva in the middle of October in the woods beyond Offenbach, mining in the leaves of *Agrimonia Eupatoria*, along with *Nepticula Agrimoniæ*, Frey. But it does not change like that species within the leaf, but quits the mine, and spins a rather flat, oval, reddish-brown cocoon. The mine forms an irregular, large yellowish blotch. The moth makes its appearance the beginning of May. (1859.)

Nepticula argentipedella, Zeller, Heyden (E. Z. 1861, p. 41). The larva mines the leaves of the birch in October and the beginning of November, forming a more or less rounded black-brown blotch, with paler edges. The central portion, filled up with the excrement of the larva, serves for its abode, and the pale margins are the places where it feeds on the parenchyma. Sometimes we find a number of these blotch-mines in one leaf.

The larva quits its mine when full fed, and spins its cocoon in some convenient spot; sometimes we find many cocoons close together. The cocoon is oval, slightly arched, scalloped, pale brown.

The imago appears at the end of May, and I have not observed a second brood. I have often found the mines in countless numbers. I have met with it around Frankfort, at Wiesbaden, in the Taunus mountains, &c. (1857.)

NEPTICULA BIS-TRIMACULELLA, n. sp., Heyden (E. Z. 1861, p. 40).

Capillis nigro-fuscis; conchula nivea; alis anterioribus nigris, maculâ parvâ basali, maculisque duabus subopositis pone medium albis, ciliis albis; tarsis rufescentibus.

This species is nearly allied to *Nep. subbimaculella*, Haworth, and of the same size. The tuft of the head is brown-black; the lower part of the face reddish. The antennæ are brown-black, with the eye-cap and following joint white, and the tips whitish.

Anterior wings black, with a small white basal spot, and two larger opposite spots, of which the costal spot is before the middle, and the dorsal spot in the middle; cilia of the apex of the wing white. Posterior wings grey.

Thorax and abdomen blackish, with some paler scales intermingled. Anal tuft reddish. Legs brownish, the tarsal joints reddish.

This is easily distinguished from *Nepticula subbimaculella* by the colour of the tuft of the head, and by the antennæ, and by the finer scaling and purer blacker colour of the anterior wings. *N. subbimaculella* has, especially towards the apex of the wing, many paler rather metallic scales mingled with the brown-black ground, and dark scales extend further into the white cilia at the apex of the wing.

The description of the larva I will furnish afterwards. The cocoon is oval, slightly curved, anteriorly rounded, reddish.

The larva mines a very similar blotch to that of *Nepticula subbimaculella*, but in the leaves of the birch. I found it the beginning of October at Hofheim in the Taunus

mountains, and the moth made its appearanee at the end of May. (1859.)

Nepticula argyropeza, Zell., Heyden (E. Z. 1861, p. 40). The larva occurs in great numbers mining the leaves of the *white* poplar (*Populus alba*). The mine forms an elongate brownish-yellow blotch at the base of the leaf, close to the foot stalk, between two ribs. Most frequently two mines are found in a leaf, one on each side of the mid-rib. I have never found the mine in any other part of the leaf.

I first discovered the larva at Wiesbaden in the middle of October, 1858, but out of a large number which I collected, not a single specimen attained the pupa state. Last year I collected the larvæ here at Frankfort at the end of October in the already fallen leaves. In the first half of November the larvæ quit the leaves, and spin their cocoons; these are oval, rather arched above, scalloped, of a reddish-brown, more rarely of a yellowish-brown.

The perfect insect made its appearance in the room from the beginning to the end of March, and still continued to appear in April, when I likewise met with it out of doors. (1858.)

[In a subsequent note, E. Z. 1865, p. 106, Senator von Heyden remarked that the above-mentioned species is not *Argyropeza*, Zeller, but *Sericopeza*, Zeller. This is clearly an error, *Sericopeza* being a maple feeder. The poplar-feeding species of the genus *Nepticula* have been worked out with some care by Professor Fritzsche, of Freiberg, in Saxony, but unfortunately his observations have not yet been published.]

Nepticula apicella, Stainton, Heyden (E. Z. 1865,

p. 381). I found the larvæ in the middle of October near the house of the head-forester at Frankfort, mining in the leaves of *Populus tremula*. The mine forms an elongate, black-brown blotch from the leaf-stalk between the edge of the leaf and the first side rib, or between the first side rib and the midrib; it widens anteriorly, and is sometimes five lines long. There is often a mine on each side of the midrib.

The moth deposits its egg at the end of the leaf-stalk, in which the larva mines till the end of September or beginning of October, and then passes into the leaf. This portion of the leaf-stalk is flattened sideways, but tolerably thick. The cocoon is oval, arched above, rather shining, brown.

The moth made its appearance in the room at the end of April. (1860.)

Pterophorus microdactylus, Hb., Heyden (E. Z. 1860, p. 125). The larva feeds in autumn in the stems o *Eupatorium cannabinum*, winters there, and the perfect insect makes its appearance at the beginning of May, escaping through a small round hole in the stem.

This occurs in all localities round Frankfort, where its food-plant grows. (1826.)

Pterophorus xanthodactylus, Tr., Heyden (E. Z. 1860, p. 125). I found the larvæ in great plenty in light fir woods on the sandy plain at Jugenheim in the Odenwald on the *Jurinea Pollichii*, Koch, at the end of July and beginning of August. The larva is very sluggish, and readily lets itself fall from its food plant to the earth, where it curves itself together. It lives on the underside of the leaves, feeding on the parenchyma, and leaving the upper epidermis untouched. When the larva is feeding, it loosens

the white down from the underside of the leaf in an uninterrupted strip, and shoves it in little rolls beneath its body. These rolls of down then remain hanging to the underside of the leaf, and give it a peculiar appearance as though banded transversely. It assumes the pupa state horizontally on the food plant, and the larval skin hangs as a white lump to the tail end.

The perfect insect makes its appearance the middle of August, yet I found it sparingly at the same time as the larvæ, when it sat gregariously on the flower of the plant, or on some neighbouring plants of *Scabiosa*.

The *Jurinea* grows very abundantly on the Mombach Sands near Mayence, but I have never found the Plume there. (1858.)

Alucita dodecadactyla, Hb., Heyden (E. Z. 1861 p. 42). The larva has a very peculiar mode of life. It occurs at Bingen on the Rhine at the end of June and beginning of July in swellings on the last year's twigs of honeysuckle (*Lonicera xylosteum*); to this my attention was first called by Herr Karl Wagner. These swellings are not thick, and often scarcely perceptible, and are from one to two inches long. The larva feeds on the pith of the twig. At the beginning of July it quits its domicile through a small hole, and spins a flat transparent net-work cocoon on the ground amongst old leaves, or on stones, &c., and changes therein to the pupa state; the perfect insect appearing the beginning of August.

Having now concluded this monument to the memory of my late lamented friend, whose acquaintance I first made in 1855, whom I subsequently met in 1857, 1859, 1861, 1862, 1863, and 1865; and with whom I have repeatedly

made Entomological excursions to Mombach, to Königstein and Falkenstein, to Eberstadt, &c., I feel that I must say a few words to endeavour to convey to those, who had not the pleasure of the personal acquaintance of Senator von Heyden, some idea of his extreme kindness.

If he thought you were interested in any subject he spared no trouble to supply you with information. His sharp observant eye was very quick to detect indications of unknown larvæ, and every discovery he made at once became public property. It was interesting also to observe how his face brightened up with pleasure at the discoveries made by others. A more thoroughly genial unselfish person I never met.

In many respects he put me in mind of the late Professor Henslow, and this statement may enable many who knew that amiable botanist to form some conception of the loss which the Frankfort Entomologists felt when Senator von Heyden was taken from them.

H. T. Stainton,

Mountsfield, Lewisham,
November 1, 1867.

COLEOPTERA.

New British Species, Corrections of Nomenclature, etc., noticed since the publication of the Entomologist's Annual, 1867.

By E. C. Rye.

The small number of pages that I shall require on the present occasion will, I trust, atone for the inordinate space unavoidably occupied by my lengthy paper in the last "Annual;" the captures and determinations recorded in which could not be accepted as anything short of miraculous for the work of one year, considering our limited number of Coleopterists. After such a storm it was not be expected but that a lull should come; and the lull is, in this instance, as deep in proportion as its predecessor was violent. It must not, however, be supposed that the few species now to be recorded comprise the entire work of the year; as I know of several novelties taken, but not yet satisfactorily determined. Moreover, circumstances have prevented some of us from devoting so much time as heretofore to our favourite study; and the weather has on very many occasions been so bad as to damp the ardour of most collectors.

Nevertheless, my list, though exceedingly short, will be seen to contain some few fine insects; e. g., a *Lycus* (as I suppose *Eros* or *Dictyopterus* will always be called in con-

versation by us) new to Britain; another of the same genus, which, if distinct from the species just mentioned, is probably new to science; a *Synchita* new to us, and a genus (*Diplocælus*) new to our lists. To these must be added the establishment of *Brontes* as a genuine British species, through its capture (with larva and var. *pallida*) by myself, under bark of a standing tree near Putney, far from any houses; and the capture of both sexes of the very rare *Tomicus dispar* in the New Forest by Charles Turner. Doubts have frequently been expressed as to the right of this species to be considered indigenous; but Mr. Waterhouse has long had one of the Xyloteriform female in his Cabinet, obtained from the late Rev. H. Clark; and there is another old specimen, of the same sex, in the collection of Earl de Grey.

We have no record, as of late years, of novelties from Rannoch; the only visit to that locality during this year, by Mr. T. Blackburn, having resulted in comparatively 'nil,' as regards *Coleoptera*, owing to stress of weather, unwonted and unpleasing attentions of gamekeepers and others, &c. I may here remark that Mr. Blackburn (Ent. M. Mag. iv, p. 17) has recorded the capture by himself last year, at Rannoch, of the insect brought forward by Mr. G. R. Crotch as *Cis punctulatus*, Gyll., with some doubt, and no locality; I, also, have a specimen, taken by myself at Rannoch, and which I am inclined to refer to that species.

The north has, however, again furnished many good things; Dr. Sharp having taken near Loch Ken both sexes of the hitherto (with us) unique *Bryaxis Lefebvrii* and many *Cryptohypnus maritimus* (found also in Morayshire by Mr. Hislop); and, near Dumfries, several of a *Scopæus* which he refers with doubt to *S. Erichsonii*, at the same time remarking that Mr. Crotch states it to be identical with the *S. lævigatus* of our Catalogues (not of our Cabinets, as

it was in none of them but that of Mr. Wollaston),—many *Blemus areolatus*, *Phædon concinnum*, and other good things, including *Cryptocephalus sex-punctatus* and *Ceuthorhynchidius Dawsoni*, Bris., both unexpected boreal visitors. Dr. Sharp also informs me that he has undoubted larvæ of *Carida flexuosa*, which he hopes to rear.

Mr. Lennon has recorded the occurrence of the usually deemed southerner, *Lebia crux-minor*, in the same locality; and, with Messrs. Sharp and M'Nab, has also taken *Omosita depressa* (found near Burton-on-Trent by Mr. Harris), *Silpha dispar*, and *Erirhinus æthiops* at Dumfries. This latter insect will probably soon be seen commonly in collections; as, in addition to the above locality, Mr. Crotch took several specimens last year at Pitlochrie, and I found it among some beetles sent to me for names from Paisley by Mr. Morris Young.

Mr. Hislop chronicles the capture in Morayshire of *Thalycra*, *Melolontha hippocastani*, *Anobium nigrinum*, *Blaps mortisaga* and *Leistus montanus*.

Coming further south, my friend Mr. T. J. Bold has found the true *Sitones linëellus* (also taken by Mr. Hislop) and *S. meliloti* in considerable numbers near Newcastle; and Mr. Roberts records *Miscodera* in profusion at Llangollen, in June.

From the Midland counties, we read of some fresh specimens of *Oxythyrea*, found by Mr. J. Hardy crawling in a garden at one of the Manchester suburbs; and several of *Abdera 4-fasciata* taken by Mr. Edleston near Bowdon. *Conopalpus Vigorsii* has occurred in profusion at Sherwood to Charles Turner; and *Macronychus* and *Potaminus*, judging from the specimens that have come under my observation, must have been found in tolerable plenty near Burton-on-Trent.

The indefatigable Mr. Brewer found the *Scopæus* above mentioned at Bettys-y-Coed, N. Wales;—curiously enough, about the same time that it was taken in Scotland by Dr. Sharp. He also secured a single *Cryptohypnus maritimus* at the same place, and an apparently new *Telephorus*. On Skiddaw he found (as did Mr. Edleston) *Otiorhynchus maurus;* and at Horning Fen took the once rare *Dromius longiceps* and *Malachius ruficollis* in quantities. Of the many other species that have occurred to him, *Bledius taurus* and *B. bicornis* in some numbers at Wells, Norfolk, *B. atricapillus* at Lowestoft, and *Homalota dilaticornis* at Reigate, are, perhaps, the most conspicuous. It may be worth noting that Mr. Brewer has also again found the lovely *Chrysomela cerealis* on Snowdon, and in some numbers.

Erirhinus pillumus has suddenly (*more Edusæ*) appeared in quantities, in more than one place; and the capture of *Omias Bohemanni* at Southend by my friend the Rev. H. S. Gorham seems worthy of note.

To enumerate Dr. Power's good captures would necessarily cause my paper to cease to be a short one. He has confirmed as British *Triplax ruficollis*, to which reference is hereafter made, and has found *Lixus angustatus* at Hastings (of which he has carefully observed the earlier stages, transformations, habits and parasites), and *Apion dissimile* at Weybridge, both in profusion, another example of *Ceuthorhynchidius pumilio* at the latter place, and very many other good things.

I have, myself, found *Ceuthorhynchus rapæ* at Tottenham, in some numbers, on *Sisymbrium officinale* (it has also been found by Dr. Power in similar quantity), *C. tarsalis* at Belvedere, and *Anisoxya fuscula*, *Læmophlæus bimaculatus* (also found by Chas. Turner in the New Forest), *Homalota*

oblita, *Tetratoma fungorum*, &c., at Putney; and Mr. Lacy records *Drypta* in plenty near Gosport.

Apart from the usual vehicles of Entomological information, I am only aware of one British publication on *Coleoptera* during the past year; viz., Mr. E. Parfitt's Catalogue of the *Coleoptera* of Devon, forming part of a proposed work on the general Natural History of that county.

In this Catalogue (which is scarcely sufficiently elaborated; grievous mistakes in orthography, nomenclature, type, &c., being very numerous, besides the existence of such errors as the location of *Ephistemus*, varied to *Epistemus*, in two different families, the occurrence of *Lamprosoma* in two widely separated groups, and the transplantation of *Scydmænus* and *Euthia* into the *Heteromera*) there appear some statements with respect to certain insects which are likely to be of particular interest to the British Coleopterist. The insects to which I refer are (omitting divers Leachian and Stephensian species, which are mere revivals of the original records) as follow:—

Falagria picea, Grav., Steph. This, teste Erichson, is *F. nigra*, Grav., var.; a species not hitherto correctly recorded as British, according to the best of my knowledge.

Aleochara agilis (Kirby), Steph. This insect is supposed to be identical with *A. bilineata*, Gyll.; it is, however, separated in Mr. Parfitt's Cat. from that species, which is also included therein, immediately preceding *A. agilis*.

Philonthus cyaneipennis. "Exeter, very rare, *also* taken by Dr. Leach." The "also" would seem to imply that the former part of the sentence refers to another capture (or other captures) of this species, more recent than that mentioned in the latter part. The insect is generally considered to be doubtfully British.

Agathidium nanum, Merg. (? Megerle); Steph. Stephens'

insect, as pointed out in Mr. Waterhouse's Catalogue, is *Clambus armadillo*, de G.; a species appearing, as distinct, on the same page with *A. nanum*, in Mr. Parfitt's Cat.

Atomaria atra. Hitherto included in our lists, as I believe, on the authority of dark forms of *A. mesomelas.*

Athöus cavus. "Exceedingly rare, one only taken at Newton." I imagine Mr. Parfitt's insect may be *A. difformis*, Lac. (*campyloides*, Newm.); but the female of *A. longicollis* is at once rare and deceptive.

Ceuthorhynchus ovalis, Linn. This is, I presume, the insect known to us as *C. litura*, Fab.

Callidium russicum, Fab. Mr. Parfitt records this as Devonian, stating that he has never seen it himself, but that he takes the word of Stephens for it, the latter not giving his authority. Surely it must be evident that such an attempt to revive an evidently imported Longicorn cannot have the slightest weight.

Aphthona cyparissiæ and *Dibolia cynoglossi.* Mr. Parfitt gives localities for both these rather more than doubtful insects, apparently from his own observation; but ascribes both as species to an author, variously termed "Halidy" and "Halad.," who appears, according to Mr. Parfitt, to have published them in a work referred to as "Ent.," with which I am unacquainted.

Both species were originally described in the Ent. Hefte, anonymously.

Coccinella hyperborea. "Common" (usually considered as doubtfully indigenous).

Besides the above, Mr. Parfitt's following remarks upon certain well known species appear to me note-worthy:

Pterostichus cupreus, red-legged var. "Equally common with the species."

Bembidium obliquum. "Exeter district."

Oxypoda vittata. "In Boleti."
Homalota gregaria. "In fungi."
Staphylinus erythropterus. "Generally distributed."
Silpha subrotundata. "Christow." (Hitherto only known to me from Ireland.)
Olibrus æneus. "On fir trees." (Invariably occurs with us on chamomile, or *Matricaria*.)
Blaps mortisaga, Linn. "Common." (? *mucronata*, Lat.)
Sitones regensteinensis. "On beans." (With us it always occurs on broom.)
Hylobius abietis. "I have never met with it on firs, but have always taken it on ivy, on the leaves of which it feeds." (In its home, Scotland, there can be no mistake as to its fir-feeding habits.)
Cossonus linearis. "In sugar." (A truly wonderful habitat for the species.)
Trichopteryx littoralis. "On the coast." (? *fucicola*, All.)

Mr. Parfitt, speaking of Dartmoor, rightly suggests that *Crioceris asparagi* and a few other universally distributed insects, which he refers to as the most marked forms inhabiting that district, cannot be called mountain or northern species. It is noteworthy, however, that out of a few insects taken in that region by Mr. Wollaston and sent to me, there should be more than one of a *Patrobus* (a genus not included in Mr. Parfitt's Cat.) perfectly identical with the *P. assimilis*, Chaud. (*clavipes*, Thoms.), found so abundantly on the Scotch mountains.

Looking prospectively, it may be a subject of congratulation to us that the Part containing the *Coleoptera* of the Catalogue of British Insects proposed to be undertaken by ths Entomological Society is not unlikely to be published

before long. The Rev. A. Matthews has, also, completed the dissections, drawings and descriptions for his much looked-for Monograph of *Trichopterygidæ;* a book that will certainly cast into the shade all former works on that most puzzling family of atoms.

With regard to the species now to be recorded, no division into classes (as in the last "Annual") is required, on account of the small number requiring comment.

1. PHYTOSUS NIGRIVENTRIS, Chevr.

Mr. G. R. Crotch (Newman's Entomologist, 35, p. 175) remarks that this species, nearly allied to *P. balticus* (Ent. Ann. 1867, p. 59), seems to replace that insect on our southern shores. The only southern example that has occurred to me, from the Isle of Wight, is, however, not separable from the Northumberland *balticus*.

2. THIASOPHILA INQUILINA, Märk.; Wat. Cat.

In the Entomologists' Monthly Magazine, vol. iii, p. 189, I have at full length stated my reasons for uniting the insect known in England as *Euryusa Kirbyi* with this species; such collocation having been questioned by my friend Mr. G. R. Crotch (l. c.).

There seems to be no occasion at present to go any further into the question, as I have not as yet observed any reply to my remarks.

3. CRATARÆA (HAPLOGLOSSA) ERYTHROCERAS, Steph. *prætexta*, Er.

Mr. Crotch (l. c.), while giving priority to the Stephensian name, which he employs in the 2nd edition of his Catalogue, states that it is in turn superseded by *suturalis*, Sahlb.

4. Aleochara algarum, Fauvel; Ent. Ann. 1867, 59.

Mr. Crotch (l. c.) is not quite correct in attributing the *A. Fauvelii* of my Catalogue to this species. As mentioned in the last "Annual," it is to *A. grisea*, Ktz., that *A. Fauvelii* is properly to be referred.

5. Oxypoda humidula, Kraatz; Ent. Ann. 1867, 108.

Mr. Crotch (l. c.) withdraws his proposed name of *Erichsoni* for this species.

6. Oxypoda sericea, Heer.

Mr. Crotch (l. c.) states that comparison of typical specimens show that Mr. Waterhouse's *O. nigrina* belongs to this species; with which Fauvel unites *O. exigua*, Er., an opinion in which Mr. Crotch does not concur.

7. Oxypoda incrassata, Muls.

Mr. Crotch (l. c.) remarks that Mr. Waterhouse's expressed doubts as to the identity of his *O. aterrima* with this species now prove to have been correct.

8. Homalota algæ, Hardy, Ent. Ann. 1867, 109.

Mr. Crotch (l. c.) thinks that Hardy's name ought to be retained for one of the two distinct insects confused in his supposed species. I cannot agree with him in this respect, though most anxious to retain a British author's name, if it be really entitled to stand.

Moreover, that one of these two insects to which Mr. Crotch attributes Hardy's *algæ* has been proved to be the prior-described *H. atricilla* of Erichson.

9. HOMALOTA DEPRESSA, Fab.

Mr. Crotch (l. c.) suggests the adoption of this name for the insect known to us as *H. brunnea*, which, as he states, is identical with *Homalium brunneum*, Payk.

10. OLIGOTA PARVA, Kr.

pygmæa, Kr. [nomen prius usitatum].

Mr. Crotch (l. c.) adopts this correction.

11. QUEDIUS RUFIPES, Er.

Mr. Crotch (l. c.), referring Marshamian types of *Q. semi-obscurus* to this species, proposes to retain the Erichsonian *semi-obscurus* in place of Stephens' *semi-æneus*, though Erichson's name refers to the Marshamian insect. This, surely, is inadmissible.

12. PHILONTHUS CONCINNUS, Grav.; Ent. Ann. 1867, 65.

Mr. Crotch (l. c.) states this to be a small form of *P. ebeninus*, noticed by Erichson and Kraatz, but apparently possessing constant specific characters; also that Thomson first (I presume, secondly) regarded it as a species, under the name of *varians* (nec Payk.).

13. LEPTACINUS PUSILLUS, Steph.

Mr. Crotch (l. c.) adopts this name for the insect known to us as *L. linearis*, Grav., the specific appellation of which clashes (as he says) with the *Xantholinus* of the same name.

14. LITHOCHARIS FERRUGINEA, Er.; Ent. Ann. 1867, 66.

Mr. Crotch (l. c.) thinks there may be some confusion

between this species and *L. brunnea*, some insects which he has attributed to the latter having the longitudinal thoracic groove characteristic of the former. He suggests an error on the part of Dr. Kraatz.

15. Lithocharis ruficollis, Kraatz.

Mr. Crotch (l. c.) deposes the Marshamian *tricolor* as clashing with the *Xantholinus* of that name.

16. Micra(ca)lymma marina, Ström.

Mr. Crotch (l. c.) restores this name, antecedent to the Gyllenhalian *brevipennis;* remarking that Mr. Haliday appears to have first noticed that Ström described the insect with his *Æpys* of the same name.

17. Bledius pallipes, Grav.; G. R. Crotch, Cat. Brit. Col. ed. 2; E. C. Rye, Ent. Mo. Mag. vol. iii, p. 232, 4.

This species, originally included in Mr. Waterhouse's Catalogue, but subsequently withdrawn, on account of certain discrepancies between the insect at first so named by that gentleman and Gravenhorst's species, and now represented by the "*Bledius* 5 sp. — ?" of his Catalogue, is again brought forward as British (but with a query) by Mr. Crotch.

I have certainly (though I have examined many specimens from different localities) never yet seen anything exactly agreeing with the descriptions of Gravenhorst's species. Indeed, there would appear to be some difficulty on the Continent in making out the latter; as I have even been informed that so acute a Coleopterist as M. Ch. Brisout, to whom examples of my *B. fuscipes* had been sent, had referred *that* species

to *B. pallipes*. On my communicating with him on the subject, and pointing out the published discrepancies between the two insects, M. Brisout courteously writes to me that a second and more careful examination of *B. fuscipes* has convinced him not only of the impossibility of referring it to *B. pallipes*, but of the validity of my species. Nevertheless, I am subsequently informed that M. Fauvel, who, as I believe, meditates a revision of the European *Brachelytra*, refers my insect to *B. pallipes;* on what grounds I know not.

18. Oxytelus maritimus, Thoms.; W. R. M'Nab, Ent. Mo. Mag. iv, 112.

Dr. M'Nab has pointed out, on the authority of a specimen given to him by Mr. Murray and taken by Mr. Hardy himself, that the *O. flavipes* of Murray's Catalogue is referable to this insect. It seems unfortunate that, however correct this determination may be as regards the insect meant by Messrs. Hardy and Murray, the *O. flavipes* of Stephens, to which those gentlemen refer it, does not exist in the Cabinet of the latter author; the description and localities given rendering it, indeed, more than doubtful whether *his* species can be the same as that subsequently (and well) described by M. Thomson.

19. ? Synchita mediolanensis, Villa, Col. Europ. dupl. 36, 38; Erichs. Ins. Deutschl. iii, 271, 2.

To this species is referred with doubt the *Synchita* recently taken (in some quantities) in the New Forest by Charles Turner. It would appear to be impossible to form a decided opinion without comparing it with *S. juglandis*, an insect in very few British collections; and even then there would remain some doubt as to its correct determination, for

Mr. Janson (by whose permission I provisionally register the insect here) tells me that in his opinion the *S. juglandis* of M. Allard's Collection is represented by Turner's species.

S. mediolanensis appears to be narrower than *S. juglandis*, with a larger and broader club to the antennæ; a longer, only gently rounded, more widely and strongly punctured thorax; more strongly punctured striæ, and stouter and thicker setæ on the elytra. In colour it is quite at variance with Turner's insect; being testaceous or rufo-testaceous, instead of pitchy-black, with a light humeral patch.

20. Diplocælus fagi, Guérin, Spéc. et Icon. Gén. &c. 126; Aubé, Ann. de la Soc. Ent. de Fr. 1850, 329.

The grand addition of a new genus (of *Mycetophagidæ*) to our list was effected by Charles Turner, when he captured several examples of the above insect in the New Forest, during the past autumn; having been sent to that well known locality by Messrs. Janson and Crotch. I register the insect provisionally by permission of the former gentleman.

It superficially resembles *Triphyllus punctatus*, but is considerably smaller than that species, from which it may be readily known by its short antennæ, of which the 3-jointed club has the two apical joints abruptly broadened, its laterally channelled thorax and punctate-striate elytra, of which the interstices are flat, &c.

21. Elater coccinatus, E. C. Rye, Ent. Monthly Mag. vol. iii, p. 249 (*described*).

5 *nov. sp.*? Wat. Cat.; E. C. Rye, loc. cit., p. 233.

Taken in Kensington Gardens and Windsor Forest; and not to be reconciled with any previously described species

with bright red elytra,—chiefly through its narrow, parallel shape, long, parallel, dull and densely punctured thorax, and the slight striæ and flat interstices of its elytra. It resembles the immaculate form of *E. sanguinolentus*, Schr. (*ephippium*, olim), more than any other species with which I am acquainted; but may be readily separated from that insect by its larger antennæ, longer, duller and posteriorly canaliculated thorax, &c.

It seems scarcely credible that so conspicuous an insect should have hitherto escaped record; but my notice seems to have failed as yet to produce any attempt to identify *E. coccinatus* with a previously recorded species.

22. Elater præustus, Fab., Germ.; G. R. Waterhouse, Trans. Ent. Soc. vol. v, n.s. pt. iii; E. C. Rye, Ent. Mo. Mag. iii, 250.

This insect appears not to be included in any of our recent Catalogues; but Mr. Waterhouse, in his paper on the *Elateridæ* in the Stephensian Cabinet (loc. cit.), points out that there is an example of it among Stephens' *E. pomonæ*.

Its red elytra being tipped with black would readily distinguish it from all our species except *E. elongatulus;* from which its much larger size and broader build would at once separate it.

23. Agriotes pilosus, Panzer; G. R. Waterhouse, loc. cit.; J. A. Power, Ent. Mo. Mag. vol. i, p. 235; Ent. Ann. 1866, p. 88, 41.

Mr. Waterhouse, in the paper above referred to, first pointed out the claims (such as they are) of this species to be

considered British; the *Athöus elongatus* of Stephens' Cabinet being, according to him, represented by an example of *Agriotes pilosus*. Mr. Waterhouse, however, expresses a doubt as to the authenticity of the British origin of this example,—a doubt amply borne out by the reference to *A. elongatus* in the "Manual."

24. Eros affinis, Payk.; Kies., Ins. Deutschl. iv, 441, 4; E. C. Rye, Ent. Mo. Mag. iii, 251.

A single specimen of an insect which I have referred to the above species was taken at Killarney in 1866 by a son of Mr. J. Hardy, of Emden Street, Hulme, Manchester. At the same time a pair of elytra of the same species were found floating at the edge of the lake.

E. affinis is smaller than *E. Aurora*, and readily distinguishable from that species by its black thorax, of which the anterior margin (which is minutely but sharply notched in the middle) is obscurely reddish; the small size of the third joint of its antennæ, which is but little longer than the second; and its shorter elytra, the interstices between the four elevated ridges of which are not broken up by supplementary longitudinal striæ, but are uninterruptedly transversely reticulate. The scutellum is straightly truncate behind; the thorax broader, less contracted in front, and with the discal fovea more oblong oval than rhomboidal.

Kiesenwetter (l. c.), continuing the comparison with *E. Aurora*, states that the joints of the antennæ are shorter and thicker in *E. affinis* than in that species; but, from an examination of a German type of *E. affinis* (agreeing in every other respect with his description) in the Brit. Mus., I find the exact converse to be the case.

25. ORCHESIA FASCIATA, Payk.

Mr. Crotch (Newman's Ent. 35, p. 174) follows Thomson in reverting to this name, instead of adopting *undulata*, Kr.; and in assigning *fasciata*, Kr., to *trifasciata*, Zett.

26. CARIDA FLEXUOSA, Payk.

I have to admit my error in omitting this species from my Cat. It seems not unlikely to find its way into our collections now.

27. LISSODEMA HEYANA, Curt.

Mr. Crotch (l. c.) reverts to Curtis' name; as, although the *cursor* of Gyll. is prior to it, Linnæus, from whom he took the name, intended *Silvanus surinamensis*, as shewn by his collection and description.

28. ŒDEMERA NOBILIS, Scop.

Mr. Crotch (l. c.) remarks that this name is anterior to the *cærulea* of Linn. by some years; and that its adoption will obviate the difficulty of the same specific appellation occurring in two closely allied genera.

29. MORDELLA ACULEATA, Linn.

Mr. Crotch (l. c.) records specimens of this doubtfully indigenous species from the West of England; and has two or three from Mr. Wollaston's Collection.

30. MORDELLISTENA PARVULA, Gyll.

Mr. Crotch (l. c.) states that this is the earliest name for the *M. inæqualis* of his Cat., 2nd ed.; a name representing the *pusilla* of our older lists.

31. Anthicus Schaumii, Woll.

Mr. Crotch (l. c.) doubts whether this, which represents the *A. tristis* of Wat. Cat., is more than a variety of that species; though it does not appear that we have the type form of *A. tristis* in this country.

32. ? Anthicus flavipes, Panzer, Faun. Germ. F. 58, t. 22; La Ferté, Mon. Anth. p. 222 (var. *rufipes*, Payk.); E. C. Rye, Ent. Mo. Mag. iii, 233, 21.
6 *sp. nov.*? Wat. Cat.
ater, Murray, Cat. of Scotch Col. 103; nec Panz.

I have, loc. cit., stated at length my reasons for supposing that M. du Val could scarcely have been correct in referring specimens of an insect taken by Mr. Morris Young, near Paisley, and sent to him by the latter gentleman, to the *A. flavipes* of Panzer. Neither can it possibly, according to La Ferté, be *A. ater*, though represented by that name in Mr. Murray's Catalogue: *A. ater* is, however, stated by La Ferté to occur in England, probably on account of its being included in Stephens' list.

A description of it will be found in the Ent. Mo. Mag., as above; and I cannot but think the insect has as yet escaped the observation of Continental authors.

33. Otiorhynchus muscorum, Ch. Brisout, in Grenier's Cat. Col. de France et Mat., &c., p. 109, 131; E. C. Rye, Ent. Mo. Mag. iv, p. 65.
pabulinus, Walton, nec Panzer.

When Dr. Sharp and Mr. Crotch published their list of new species referred to in the last Ent. Annual, the above

determination (of which they informed me at the time) escaped record.

The insect is common in moss in various parts of this country, and has long been recognized by British Entomologists; who could not believe it was (as the true *O. pabulinus*, Panz., appears to be, teste Stierlin, Rev. d. eur. Otiorh. Art., 286) a mere colour variety of *O. ovatus*, Linn.

It is smaller and lighter-coloured than the latter species, with evidently shorter and less robust antennæ and legs (the posterior femora being very feebly toothed beneath); longer, narrower and more parallel elytra, the pubescence on which is as it were condensed into faint and irregular indications of somewhat transverse spots; and a less strongly tuberculated thorax, the middle of which exhibits only a faint longitudinal wrinkling in comparison with the furrows of *O. ovatus*. In addition to most of these distinctions M. Brisout remarks that it has a narrower rostrum, which is distinctly depressed in the middle: the latter character I find is best observed with a glass of low power.

34. CEUTHORHYNCHUS VERSICOLOR, Ch. Brisout, in Wencker and Silberman's Cat. des Col. de l'Alsace et des Vosges, p. 131 ("L'Abeille," iv, 1867, xlix); E. C. Rye, Ent. Mo. Mag. iii, p. 215.

quercicola, Wat. Cat., nec Fab.

M. Brisout has now published, as above, his description of the species which Mr. S. R. Crotch (as recorded in the "Annual," for 1867), informed us, on the authority of the former gentleman, was identical with the insect known to us hitherto as *C. quercicola*. This insect is a *Ceuthorhynchidius*, having but six joints to the funiculus; and seems to occur sparingly all over the country, having been often taken

at Mickleham by Mr. S. Stevens and others, and also near Edinburgh by Dr. Sharp.

35. Ceuthorhynchus euphorbiæ, Ch. Brisout, loc. cit.
crux, Walton, M.S.; Wat. Cat.
cruce-signatus, Dawson, Wollaston, in litt.

M. Brisout has also published his description of this species, the MS. name of which was also made known to us by Mr. Crotch (vide "Annual," 1867).

It is worthy of remark that observers so careful as Messrs. Dawson and Wollaston have entertained the idea that our *C. crux* is only the male of *C. urticæ*, Schön.; and I must admit that all my own specimens, some half-dozen, appear to be of the male sex. I have, however, never taken the insect on nettle; but have always understood it was to be found on *Veronica*.

It has lately been taken as far north as Dumfries, by Dr. Sharp.

36. Xyloterus Waringii, Curtis, Ann. and Mag. of Nat. Hist. v. No. xxxi, p. 279, Art. xxxii (*Bostrichus*, 1849); E. C. Rye, Ent. Mo. Mag. iii, p. 250.
quercûs, Eich., Berl. Ent. Zeit., 1864.

There seems little doubt that Curtis' insect is identical with Eichhoff's species; but, although the former's description is by far the oldest, I fear that Eichhoff must be considered as the real describer of the insect, since he points out its structural characters, and differences between it and the closely allied *X. lineatus*, upon which Curtis is necessarily silent.

37. Chrysomela sanguinolenta, Linn.

Mr. G. R. Crotch, Newman's Ent., 35, 173, unites *C.*

distinguenda to this insect, as a "sub-species," apparently on the authority of Dr. Baly's investigations.

38. CHRYSOMELA HYPERICI, Forst.

Mr. Crotch (loc. cit.) states that the insect recently called *fucata* in our Catalogues is well described by a very applicable name by Forster; which name has, moreover, been in constant use.

39. LINA LONGICOLLIS, Suffr.

Mr. Crotch (loc. cit.) remarks that Suffrian himself points out that the English species hitherto known as *L. tremulæ* was referable as above. The true *L. tremulæ*, Fab., should have a thorax like *L. populi*, but be smaller than that species, and have no apical black spot.

40. PHÆDON ARMORACIÆ, Linn.

Mr. Crotch (l. c.) refers to M. Suffrian's reasons (in Stettin. Zeit.) for deposing this name in favour of *P. betulæ*, Linn.; and gives *cochleariæ*, Ol., as the correct name of the *betulæ* of our lists.

41. LYPERUS BETULINUS, Fourc.
rufipes, Wat. Cat.

Mr. Crotch (l. c.) states that M. Joannis, in his monograph of this group, has shewn the true *L. rufipes*, Fab., to differ from the insect usually known by that name in having entirely red legs, &c., and to be much rarer than our common species.

42. APHTHONA CÆRULEA, Payk.

Mr. Crotch (l. c., 174) states that our *A. pseudacori* is

certainly referable to this species; and that the *A. violacea* of Ent. Heft., to which it has usually been referred, is much smaller and more like *A. euphorbiæ*, Fab.

43. Mantura chrysanthemi, Ent. H.

M. Allard (Mon. des Alt., L'Abeille, 1866, p. 501) notices some British examples of this species which depart from the type form in the punctuation of the thorax being more scattered, and finer on the disc; the rather redder colour of the elytra, of which the suture is brownish; and the rather greater contraction and acumination of the elytra at the extremity.

M. Allard, doubting the sufficiency of these characters to establish a species, proposes to add the insects possessing them to the type form as var. *Crotchi*.

44. Thyamis castanea, Foud.; Ent. Ann., 1867, p. 96.

Mr. Crotch (l. c., 174) states, on the authority of M. Allard, that our fen "*brunnea*" are all referable to this species. He remarks, however, that we have the true *T. brunnea*, mixed with *T. lurida*, from which its rounded shoulders at once separate it. It seems, also, to tend to black in colour.

45. Thyamis patruelis, Allard, loc. cit., p. 398, 263 (p. 230 of Mon.); G. R. Crotch, Cat. Brit. Col. ed. 2; Newm. Ent. 35, p. 174; E. C. Rye, Ent. Ann., 1867, p. 96, 108; Ent. M. Mag. iii, p. 234, 22.

26 *sp*—— ? Wat. Cat.

lateralis, All. (olim); Crotch, Cat. Brit. Col. ed. 1; nec Illig.

Mr. Crotch states that M. Allard, having recognized that his *T. lateralis* was not the same species as Illiger has described under that name, has proposed for it the name first above referred to.

Mr. Waterhouse's insect, identical, as I believe, with this species, is allied to *T. melanocephala*, differing from it in being smaller, and having less evident shoulders to the elytra, which are more deeply punctured, the punctures running somewhat into striæ.

Dr. Sharp has sent me an insect taken in some numbers in a salt marsh near Dumfries, which I am unable to separate from a type given me by Mr. Waterhouse of his species.

46. THYAMIS MEMBRANACEA, Foud., Kuts.; Allard, loc. cit., p. 346 (Mon. p. 178).
teucrii, All. (olim); Crotch, Cat.

M. Allard refers his *T. teucrii* to this species. It represents the *T. minuscula* of Mr. Waterhouse's Cat., but seems to differ from the true species of that name in its rather more robust shape and clearer rufo-ferruginous colour, the much less close, coarser, and more serial disposition of the punctures of its elytra, which are, moreover, individually more obtusely rounded behind.

47. THYAMIS POWERI, Allard, loc. cit., p. 408 (p. 240 of Mon.), 273, 97.

Described by M. Allard from four specimens taken by Dr. Power, resembling the recently described *T. gracilis*, Kuts. (which, itself, resembles small *T. ochroleuca*, without the blackened posterior femora), but differing from that species in having the vertex, scutellum, sutural margins of the elytra, breast and abdomen brown; the joints of the

antennæ rather longer, the seven apical joints being darker; and the punctuation of the thorax closer and more distinct, and of the elytra more evident. The male, also, has a well marked rounded depression on the last segment of the abdomen, instead of a fine medial longitudinal line, as in the same sex of *T. gracilis*.

In dedicating this insect, M. Allard says, "Je lui ai donnée le nom de M. Power, qui l'a prise en Angleterre, avec la pensée de rendre à cet Entomologiste distingué un hommage légitimement dû." I rejoice that there appears more than a chance of Dr. Power's name being perpetuated in British Entomology by this *Haltica;* my own efforts with *Ceut. Poweri* having proved abortive.

48. Thyamis picipes, Steph., Ill. iv, p. 309; Foud.; Kuts.

M. Allard (l. c., 385) refers his former *T. atricapilla* to this species.

49. Dibolia occultans, Hoffm.; Foud.; Kuts.; All., l. c., 262.

M. Allard (I suppose on the authority of the quotation in Stephens' Ill.) refers this species to England. Oddly enough, though also in that instance quoting Stephens, he does not attribute *D. cynoglossi* to us, an insect which does occur in our Catalogue,—though with much doubt.

50. Pysliodes cucullata, Ill., Foud., Kuts.; All., l. c., 312.

M. Allard (without, however, quoting any English author)

refers this insect to all Europe. It seems to be of the size of *P. attenuata*, but to be narrower, more convex, more contracted at each extremity, and with its head immersed in the thorax, and perpendicularly inclined in front.

It appears to live on *Spergula arvensis*.

51. TRIPLAX LACORDAIRII, G. R. Crotch, Newman's Ent., 35, p. 174.

ruficollis, Lacord. Mon. des Erotyl., p. 211, sp. 10; nec Steph.

bicolor, Steph. coll. pars.

Mr. G. R. Waterhouse, in his notes on the species of *Triplax* of Stephens' Ill. and Coll. (Trans. Ent. Soc., vol. i, 3rd series, p. ii, 3 Dec., 1860), has pointed out that one of Stephens' *T. bicolor* (*ænea*, auct.) was referable to Lacordaire's species above quoted, and was in all probability truly indigenous. Lacordaire appears to have also referred Stephens' *ruficollis* to this insect; but the Stephensian species of that name seems to be *T. nigriceps*, Lac.; Mr. Crotch has accordingly (loc. cit.) re-named the French author's *ruficollis*, described some years after publication of Stephens' species of the same name; and at the same time has expressed a doubt with regard to the true British character of this and two others in the same genus. Dr. Power has, however, recently taken a specimen of *T. ruficollis*, Lac., out of a fungus at Erith.

It resembles *T. ænea* in size, but has black elytra, with the interstices of the striæ distinctly punctured and a black scutellum.

52. COCCINELLA BISSEXGUTTATA, Fab.

Mr. G. R. Crotch (l. c.) states that he has seen three or

four certainly indigenous examples of this insect, usually, but erroneously, considered to be the female of *C.* 16-*guttata*, of which he has both sexes.

53. Lathridius carbonarius, (Chevrolat) Mannerheim, Versuch ein. Mon. Darst. d. Käf. Cort. u. Lathr., p. 103, 42.

Taken in quantity during the past autumn by Charles Turner in the New Forest, and given to me, with the above name, by Mr. E. W. Janson, by whose authority I register it here.

It differs from *L. minutus* (apart from other characters) in its average smaller size, more elongate and linear shape, opaque appearance and shorter antennæ, and in the very evident oblique impression on each elytron below the base.

54. Euplectus Easterbrookianus, Leach, Zool. Journ. vol. 2, p. 445; Steph. Man. Brit. Col. p. 349, 2732; E. Parfitt, Nat. Hist. of Devon, Part ii, *Coleoptera*, p. 24.

Mr. Parfitt remarks thus in his Catalogue concerning the above insect:—"What this species really is, I know not; it was a desideratum with Mr. Stephens, and I have never seen it. Mr. Waterhouse does not even give it as a synonym, but Dr. Leach was too accurate an authority to be passed over in silence."

On this (lack of) evidence, it would, perhaps, have been as well to have avoided bringing such an obscurity forward. Denny does not mention it; and Aubé (Mon. Psel., p. 61) reproduces the Leachian description in inverted commas, with the remark "*insecto inviso.*"

55. TRICHOPTERYX VARIOLOSA, Mulsant, Opusc. Ent. xii, p. 187, 1861 (*Ptilium*); Rev. A. Matthews, Ent. Mo. Mag. iv, p. 18.

littoralis (*Bœocrara*), Thomson (nomen prius usitatum).

Thomsoni, D. Sharp, Ent. Mo. Mag. ii, p. 230.

Mr. Matthews, having now dissected the organs of the mouth of the insect to which the above quotations refer, and finding them exactly similar to the corresponding parts in undoubted members of the genus *Trichopteryx*, save certain slight (and, in his opinion, only specific) differences in the labrum and maxillary palpi, comes to the conclusion that Thomson's genus *Bœocrara* must fall to the ground. The anatomy of the underside and shape and neuration of the wing appear to be alike in this insect and the most typical *Trichopteryx*; in which genus Thomson's character of the margined sides of the thorax seems almost to be universal.

Mr. Matthews rejects the name *Thomsoni* proposed for the species above referred to by Dr. Sharp, as Mulsant had long before the publication of the 2nd vol. of the Ent. Mo. Mag. described it under the name of *Ptilium variolosum*; a fact detected by Dr. Sharp soon after he had proposed to give Thomson's name to the insect which that author had originally described under the name *littoralis*, already occupied by Motschulsky for another allied species.

Mr. Matthews suggests the possibility of a doubt as to whether the British examples be really referable to the *B. littoralis* of Thomson, on account of his not having yet obtained from the latter a type of his insect.

I have deferred noticing the second species of *Eros* men-

tioned in my introductory remarks until the end of this paper, in the hope of being able to say something definite about it. It was taken (by sweeping) in Sherwood Forest during the past summer, in some numbers, by the Rev. A. Matthews; who, being unable to refer it satisfactorily to any recorded European species, has sent a specimen to M. Brisout, for comparison with *E. alternatus*, Fairm. M. Brisout has not as yet pronounced any opinion upon the insect: but I may observe that a type of *E. alternatus* in Mr. Janson's Collection is certainly specifically distinct from it. If new, as Mr. Matthews thinks it possibly may be, since it does not perfectly agree with any description yet published, a further account of it will appear from that gentleman's pen in an early No. of the "Entomologist's Monthly Magazine."

The insect, a most beautiful one, is figured on our frontispiece. I am not in a position to express any decided opinion upon the point; but certainly, from recollection, think that Mr. Matthews' insect is specifically identical with the single specimen from Killarney (not in my possession) upon which I introduced *E. affinis*, Payk.; with the description of which species Mr. Matthews' insect appears to me to agree in every essential point, except in Kiesenwetter's character of the greater thickness and the shortness of the joints of the antennæ (but not referring to the third joint specially, the shortness of which is very evident in Mr. Matthews' insect), as compared with *E. Aurora*. I am, however, as may be inferred from the remark on this point at p. 68, not inclined to lay any stress upon this character.

E. C. Rye,

7, Park Field, Putney, S.W.
19*th Nov.* 1867.

HYMENOPTERA.

Notes on Hymenoptera.

By Frederick Smith.

Two years have elapsed since I contributed a few notes on British Hymenoptera to the "Entomologist's Annual," and within my experience, no two seasons will parallel their unproductiveness of novelty, or the scarcity of Hymenopterous insects generally.

I have no species new to the British list to chronicle, and but very few captures of rarities to enumerate. The general scarcity of *Aculeata*, during the past season, can, I think, be readily accounted for; quite in early spring we had an interval of hot summer-like weather, when spring bees appeared in considerable numbers; more so, indeed, than I have observed them to do for some years past; in fact, a recurrence of a glorious season, such as we enjoyed some twelve or fourteen years ago, appeared to be opening upon us; alas! our expectations were speedily doomed to disappointment; winter, as it were, stepped back to give us a parting greeting, and again chilled us with a salute of frost and snow. The hot weather that preceded this unwelcome return had roused the insect world, vast numbers had come forth, probably most of those which had passed the winter in torpidity, in their perfect condition; others that had, during that inclement period, remained in the larva state,

then changed to pupæ, and all such, I have little doubt, perished on the return of the cold, wet and severe weather we again experienced.

Vespidæ were numerous during the hot weather alluded to, and that family, according to my observation, is the first to perish under such circumstances as followed that interval. I have not seen, probably, more than twenty wasps during the past summer and autumn, although, in some districts, I have ascertained, they were numerous; such is, no doubt, usually the case during seasons when these insects are not universally so. In the year 1860, I believe, I only saw three wasps; but I was at that time informed, they had been very plentiful in the neighbourhood of Kelso.

Observation has shown, that seasons in which *Hymenoptera* are generally abundant have been preceded by severe winters, followed by genial spring weather unbroken by any interval of severe frost, or any superabundance of heavy rains; a combination of both is most fatal to insect life.

In the month of June last, I visited a locality where an extensive colony of *Anthophora acervorum* has long been established; on examining their burrows, I found not less than twenty dead bees for every living one; the majority of the dead ones were in the pupa state, others more or less advanced towards the perfect condition; such, I believe, will always be found to be the case, where weather, such as we experienced at the beginning of the last Entomological season occurs.

During the summers of 1858-9, I visited the neighbourhood of Lowestoft in Suffolk; a locality, at that time, extremely rich in rare and local *Hymenoptera;* again I visited the same spot last season, when, on the contrary, an Hymenopterous insect was quite a rarity. In no place, with

which I am acquainted, are *Bombi* usually more abundant; and I am not in the slightest degree underrating the number, when I estimate the number that I saw on the wing at about thirty individuals. During the entire month of August the weather was all that could possibly be desired, even by an Entomologist, yet even this failed to produce insects of any order in abundance.

One circumstance in connexion with such Aculeate *Hymenoptera* as I met with is certainly remarkable; the majority of them were mere Liliputian representatives of their race; some of the working bees, of *Bombus lapidarius*, were so diminutive, that I mistook them for a species of *Osmia*. The sandy cliffs and banks near Lowestoft usually swarm with fossorial insects, but last season they were quite as scarce as the bees; and the specimens of *Tiphia femorata* were miniature representatives of the species.

I have endeavoured to show the effect of certain conditions of weather upon Hymenopterous insects, but their scarcity is not at all times to be attributed to such influences; other causes operate frequently in causing a scarcity, or even a total absence of them, from localities where they may have been found abundantly for several years; such disappearances will frequently occur during the most favourable seasons.

For years past, I have felt assured that *Hymenoptera*, as well as other insects, migrate from one locality to another; and, we are frequently told, that certain species have been hunted up, even to annihilation, in certain places; but observation has induced me to believe that, in most instances, their disappearance is due to other causes. I have observed the common *Anthophora acervorum*,—a bee that colonizes in larger numbers, perhaps, than any other,—after having

occupied a bank for several years, until it has become completely riddled with its burrows, suddenly desert it; the same circumstance has also come under my observation with a large colony of *Eucera longicornis*, which quitted its long-established abode on the south side of Highgate Archway, and established a colony on the north side; where, I believe, it is to be found up to the present time.

Several causes for these migrations may be suggested; where extensive colonies have for a long time existed, the bank in which they burrow at last becomes, as it were, completely honey-combed, so that fresh space for new burrows becomes exhausted; parasites may also become so numerous, and other insects so obnoxious to the bees, and so formidable in numbers, that the colony is compelled to seek for new and more favourable quarters. Colonies may, probably, sometimes be entirely exterminated by parasitic *Acari*. That such was the case with a very extensive one that formerly existed at Northfleet, I have every reason to believe.

The *Acarus* to which I have alluded was described by Newport in the 21st volume of the Linnæan Transactions, and named *Heteropus ventricosa*; unfortunately the generic name had been used by no less than seven previous authors; I would therefore propose to substitute the generic appellation of *Newportia*.

This extraordinary parasite is only occasionally found, and, as far as my experience enables me to judge, only in old, long established colonies. From the one alluded to above I several times obtained larvæ of *Anthophora* for the purpose of tracing their changes, and also of rearing some of the various parasites by which they are attacked. On one occasion I procured upwards of a hundred, and of these, full two-thirds were destroyed the following spring by this exterminating *Acarus*.

This parasite feeds alike on the larva and pupa of the *Anthophora*, and these, when attacked by it, have the appearance of being covered with minute semi-transparent globules. I had frequently observed these previous to Newport's discovery of their being living creatures: they are extremely minute, and without the aid of a powerful microscope their real nature would scarcely be detected.

I may here record a very remarkable circumstance in connexion with these *Acari*. Having kept several larvæ, attacked by them, in glass tubes for the purpose of observing their progress, I found that the creatures never quitted their victim; their proboscis, or sucking apparatus, being inserted into the larvæ at the time of their birth, and in this state they imbibe its juices, arriving at their full growth, when nothing is left of their victim except its thin epidermis. When the *Acari* are fully matured, their bodies become so distended, apparently with an incalculable number of eggs, that it bursts open, and is then found to be filled with a fine brown powder or impalpable dust, this dust being the eggs of the *Acarus*. The following spring I obtained larvæ of *Anthophora*, as well as those of *Osmia bicornis;* these I sprinkled with some of the dust, and in each case the parasites were shortly developed.

Four years subsequent to this experiment, I found one of the glass tubes containing the dust of the *Acari*, and had the curiosity to try its effect upon fresh larvæ; I therefore procured some, of several species of bees, and to my gratification, with the same successful results. I am strongly inclined to believe, that whenever the eggs of the *Acarus* come in contact with suitable nourishment, their development will follow, irrespective of lapse of time.

These are a few of the causes that may tend to render old bee colonies untenantable, and conduce to the emigration of

the bees: there are many others, but enough has been adduced to show the probability of our position.

In the year 1851, when on a collecting excursion to the Isle of Wight, I captured *Philanthus triangulum* in great numbers in Sandown Bay, since which it has been taken in the same situation by other Entomologists; but I have reason to fear this fine insect has now quitted that locality. Mr. Pascoe, who resided at Ventnor some months during the past season, searched diligently for the species without finding a single specimen. Assuming this to be an example of insect migration, what circumstances have occurred likely to prove an adequate cause? The same slopes in which I found them burrowing still remain at the foot of the cliffs, the blackberry bushes still blossom, on the flowers of which I took them in plenty, and their prey, *Halicti* and Hive Bees, are no doubt as plentiful as ever: such being the case, it becomes a matter of impossibility even to suggest a probable cause, since I am not aware of any attack on *Philanthus* by any species of parasite likely to render their old locality untenantable. Atmospheric changes may no doubt operate strongly upon them—a long continued season of cold wind and rain, coming in an unfavourable direction, might so interfere with their operations as to drive them to seek some more sheltered situation; but of all places in the Isle of Wight, the Undercliff is, perhaps, the least likely to be so visited.

Among the captures made by Mr. Pascoe of Hymenopterous insects, in the above locality, I noticed examples of most of the rarities which fell to my lot sixteen years ago, the rarest being *Aporus unicolor*, and next in point of rarity may be mentioned the male of *Methoca ichneumonides*. I have only taken five specimens of this male during the long period of my Hymenopterous explorations. It is very pro-

bable that this insect is the parasite of some species of *Noctua* —I think, certainly, of some Lepidopterous insect, since Mr. Bakewell obtained species of *Thynnidæ* from cocoons of moths in Australia, and *Methoca* is the only known representative of that family hitherto taken in this country.

The extremely local and rare parasitic bee, *Nomada armata*, also occurred in the same locality as the above insects; but Mr. Pascoe failed to discover the *Cœlioxys Vectis*, one of the most abundant insects when I last visited the Isle of Wight.

I stated, at the beginning of these Notes, that I had no species new to the British list to chronicle, and, strictly speaking, such is the fact; but I have to announce the probable discovery of a genus and species not hitherto recorded in our lists; its history is briefly told.

In October last, I visited Penzance; and, whilst there, met with an inhabitant who had on two or three occasions visited the insect-room at the British Museum; the lady requested the favour of my naming a few flies of her own capturing, principally in Cornwall; of course I was rejoiced to do so; when I received the box I saw, what I took at once to be a North American insect, a species of *Polistes*. I named the insects the night before I left, and queried the *Polistes*, as well as a species of *Bombus* having been taken in Cornwall; my correspondent's own words shall answer my doubts:—"The *Polistes* was caught alive, by myself, on the window-sill of our house, in the summer of 1866. This year I caught three more, about the same time, the last week in July and the first week in August, in the very same situation in the window of our house. Two of these are still in my possession,—the third, not wanting so many, I let go. Their languid movements, so much in contrast with their fierce appearance, their entire strangeness to me,

and the fact of having caught them all in the same situation, led me to the conclusion, that they had probably been introduced in wood from a neighbouring dock-yard, which lies about a hundred yards below the windows of our house, but I did not know that they were foreign insects, till your notice of them apprised me of the fact."

It is at once evident that my correspondent supposes these wasps to be wood-boring insects: such is not the case, they are paper-makers, and construct their nest,—a single exposed comb, and attach it to trees, walls, posts, window-frames, &c., in fact, to anything suitable that is situated in a proper position for their purposes. The timber imported to Penzance is all cut into shape, and comes over, either in the form used for breastsummers for building purposes, or as boards, logs, &c.; untrimmed wood, I imagine, is never imported from America, so that it is difficult to imagine the introduction of these wasps by such means; a wasp might hide away in some hole or crevice, and so reach this country, but that they should do so two years in succession is not very probable. That a wasp imported should survive the winter at Penzance, when brought from a climate like that of N. America, is quite possible; and, also, that in the genial county of Cornwall they should establish themselves, is, to my mind, very probable.

My correspondent having taken the *Polistes* in 1866 proves nothing as to the time when, if imported at all, they were first introduced; in fact, so little has that part of the country been investigated, as to its Hymenopterous fauna, that I shall not be greatly surprised if I find a species of *Polistes* indigenous to that part of Cornwall. The common wasp of Europe, *Vespa vulgaris*, is found in N. America, and we may, therefore, hope to find a *Polistes* inhabiting both countries. (See Note at p. 96.)

The most interesting captures made in Suffolk were stylopized specimens of *Halictus abdominalis* and *H. obovata*, —these are the first examples of the larger species of the genus which I have seen so attacked; notwithstanding a most diligent search, I failed to obtain the male of the parasite; I found two bees from whose bodies it had emerged; and, judging from the size of the pupa cases remaining in the abdomen of the bee, I am satisfied of its being a much larger species than any of those that have been captured, and believed to have emerged from species of the genus *Halictus*. Younger students of Entomology, who have never seen stylopized bees, will readily detect the parasite, if the bees are carefully examined; they will observe a distortion, usually of the fourth upper abdominal segment; not invariably the fourth if there is more than one *Stylops* subsisting upon the bee; I have seen two under the third and one under the fourth, and possess several examples with one under each of those segments. When the protuberance is small, flattish, pale-coloured, and scale-like, it is the female of the parasite; should it be that of a male *Stylops*, it will be dark-coloured, black, or nearly so, and cylindrical in form; exactly resembling the apical portion of a Lepidopterous pupa case; of course, a miniature resemblance.

Of the stylopized *Halicti*, I took two males and four females. I do not, therefore, think the parasite can be rare in the vicinity of Lowestoft.

Several of the smaller species of *Halicti* have been observed to be attacked by these parasites: the *H. nitidiusculus* most frequently so; also *H. minutus*, *H. æratus*, and *H. quadrinotatus*; the genus *Halictophagus* is supposed to be the parasite of these smaller *Halicti*, but no Entomologist

has succeeded in rearing the parasite from the bee. Mr. Dale captured *Halictophagus* in company with *H. æratus*, which is certainly strong presumptive evidence of their relationship. This parasite is very minute, not exceeding the twelfth of an inch in length; the species which attacked *H. rubicundus* and *H. obovata* must, certainly, belong to some new genus, or be a new and grand species of *Halictophagus*.

Judging from the great difference in the size of the females found imbedded in the bodies of the various *Andrenidæ* and *Halicti*, I am led to the conclusion, that we have yet much to discover in this most curious and interesting family of parasites. I have seen a British species of *Prosopis*, in whose abdomen a parasite had been nourished, and also a species of *Odynerus*, belonging to the *Vespidæ*.

Taking into consideration our present knowledge of the family of the *Stylopidæ*, we are somewhat startled when we read in the pages of the last work published on the "British Bees," by Mr. Shuckard, "their natural history is but imperfectly known, and I believe the males have not yet been discovered;" and in another passage we are informed, that "*Melöe* is the reputed parasite of the genus *Andrena*," whereas *Anthophora*, a genus belonging to the family of true bees, *Apidæ*, is the only insect upon which *Melöe* has been proved to be parasitic, and of which Mr. Newport published a most elaborate aud interesting account in the "Linnæan Transactions;" surely, the information quoted is sadly in the wake of our present knowledge of the subject.

Of all the genera of wild bees, we are perhaps best acquainted with the history of the *Bombi;* and yet, year by year, we are picking up additional facts in elucidation of

it, a truth which teaches us that the study of Entomology is inexhaustible; and we feel convinced that the complete history of a species has yet to be written.

It is usual to place the Humble Bees in two divisions, one containing such species as construct their nests on the surface of the ground; the second division, those that excavate, or that take possession of some cavity underground. Such is the general rule, but, like all rules, it has its exceptions; surface builders sometimes take possession of the nests of birds, suspended in bushes, or attached to roofs or other parts of buildings.

Among the surface builders is ranked *Bombus sylvarum;* last summer I noticed numbers of this bee frequenting a clump of the dead-nettle, *Lamium purpureum*, and being anxious to find their nest, watched their homeward passage, great was my surprise on seeing them enter a hole in the ground, after the manner of *Bombus terrestris.* This was so interesting a circumstance, that I went the following day, provided with the necessary implements for digging out the nest. It proved to be about a foot underground: the cavity which contained the nest was about five inches in diameter, and was lined with a mixture of dried moss and grass; the community was small, there being seven females, six recently disclosed, and the parent bee, whose wings were either worn off, or had been clipped off by the workers; there were twenty-two males, and about forty workers; half-a-dozen females were still undeveloped, as were also about twenty workers. This is the first instance in which I have observed a surface-building bee occupying an underground nest.

During an entire month's collecting in Suffolk and Norfolk, I did not see a single surface-building *Bombus*, except *B. sylvarum*, whereas, in former years, I have seen them in abundance. I ascertained, on inquiry, that the spring and

the early part of summer had been unusually cold and wet, which fully accounted for this scarcity.

An Entomological friend found the nest of one of the brown surface builders, constructed of cow's hair, but whence the bees had obtained it he could not ascertain. I have recorded the fact of one of these bees building with horsehair, in which instance the bees were observed collecting it from the currying of horses thrown into the loophole of a stable wall. My acquaintance also picked up a disabled *Bombus*, that had a specimen of the well-known Coleopterous insect —*Antherophagus nigricornis*—clinging to its palpi.

I have several times found *Antherophagus pallens* in the nest of *Bombus muscorum*, and have supposed it to have been attracted there by the store of honey; these beetles, being-flower frequenting species, are probably in the habit of attaching themselves to the bees when they are rifling the flowers of their sweets, and so get conveyed into their nests.

Mr. Packard informs us that the larvæ of *Bombi* are attacked by those of the genus *Melöe*, but he has not given any particulars of the development of the parasite, or whether any American Entomologist has traced the history of it, so as to confirm the statement satisfactorily. The *Bombi* are also said to be attacked by some species of *Stylops*, a circumstance not hitherto observed in Europe; it would be extremely interesting to ascertain the genus to which the parasite belongs.

Several interesting captures and observations have been made of different species of *Formicidæ;* of the *Myrmica unifasciata*, of which I possessed the only British example in this country, Mr. Pascoe took a specimen in the Isle of Wight, my own example having been found by Mr. Lewis, some years ago, at the land-slip, at no great distance from

the spot where the second specimen was taken, and which has been liberally added to my collection. There were three or four specimens from the same locality in the cabinet of Mr. Curtis, which was purchased for the Melbourne Museum.

Ants' nests, and the myrmecophilous beetles found therein, have excited great zeal and assiduity, but principally on account of the rarity of some of the species, and the consequent natural desire of Coleopterists to add them to their collections. Not any Entomologist has, I believe, made any discovery whereby a clue to their relationship to the ants has been clearly ascertained. That they act the part of scavengers in those nests in which they are found is, I conceive, the most apparently reasonable conjecture. The majority of these are rarely found in any other situation, and appear to be entirely dependant upon the ants for support; *Claviger*, never seeing the light of day during its entire existence, has consequently no need of eyes to enable it to find its way from one situation to another.

But there are other connections equally obscure in many respects, namely, those existing between one species of ant and another which live in community. We know that certain species are found in the nests of the slave-making ant, *Formica sanguinea*, in whose nest we find most commonly, in the capacity of slavery, the *Formica fusca;* these are principally carried there in the pupa state, and are consequently born, as it were, part of the household; others are carried there by force, and appear soon to become contented, and to work in unison with the rest; but there are several other species found there which appear to be interlopers, living on sufferance, but allowed unmolested to rear their progeny in perfect security.

I have received from a young and most observant Hymenopterist, a list of species found in a nest of *F. sanguinea*, at Shirley; it is an extremely interesting record, and, I trust, Mr. Rothney will continue his observations on this subject; although I have repeatedly searched the nests of this slave-making ant, I never met with some of the species contained in the list.

"*Formica fusca*, common; *F. nigra* and *F. flava*, several specimens; *Tapinoma erratica*; *Myrmica ruginodis* and *M. scabrinodis*, common; *Myrmica lobicornis*, the workers very abundant, but only one female; *Leptothorax acervorum*, all the sexes abundant in August; *L. Nylanderi*, several specimens. No nest of *Formica fusca* or of *F. flava* could be found near that of the *F. sanguinea*, but those of *F. nigra*, *T. erratica*, *Myrmica ruginodis*, and *M. scabrinodis*, were all within the distance of a few yards." The *Leptothorax Nylanderi* has never been found in any other situation than in ants' nests, usually those of *Formica rufa*. I believe Mr. Rothney to be the first who has observed *Tapinoma erratica* and *L. Nylanderi* in the nest of the slave-making ant. Some of the species named, it will be observed, are only occasional inhabitants of the nests of other ants, others appear to be permanent ones; to the latter class belongs *Myrmica muscorum* found by Dr. Nylander in the nest of *F. rufa*; it is a very minute ant, and has probably been overlooked. Such species as appear to be constantly associated with other ants may probably be deprived, or may be, more correctly speaking, deficient of the instinct that prompts others to construct their own nests, or it may be, that they find some necessary aliment in the habitations of the species they are associated with. *Claviger*, it would appear, must be entirely dependant

upon *Formica flava* for its subsistanee, and this may also be the case with other species of insects.

Mr. Rothney observed a very interesting occurrence in the habits of *Formica fuliginosa;* the nests of this ant are extremely abundant in old oak trees at Barham, in Suffolk; two such trees were situated on the opposite sides of a gravel pathway, beneath which the ants had excavated a tunnel of communication.

Tetramorium cæspitum was found at Shirley; the only other locality I know of in the vicinity of London is at Plumstead Wood; this ant is much more abundant on the sea-coast.

Mr. Rothney found the rare bee *Cœlioxys quadridentata* plentifully at Ipswich. I have only taken it at Deal and in Yorkshire.

Many, like myself, have no doubt found it most pleasurable to visit some locality, rendered historic through the records of former Entomologists; amongst such, Mousehold Heath, near Norwich, is conspicuous; here, as Mr. Curtis informed me, Kirby, Marsham, Wilkin, as well as himself, had collected insects; it was in fact a favourite spot for that purpose with Curtis himself. Judging from the success I met with, on a visit of a few hours, I should be inclined to rank it very high as an Hymenopterous treasury. The elevated situation of the heath, its delightfully broken and hilly surface, backed on the north-west by a wood of pines; its many gravel-pits, some in operation, others long deserted, and left just in the right condition to attract fossorial insects; the extensive portions covered with the purple heath, intermixed in parts with bramble bushes and fern, altogether combine to make it just the locality that bees and fossorial *Hymenoptera* most delight in. A visit to this spot, at

different periods of the season, would, I feel certain, amply repay any one inclined to investigate it fully. On the 24th of August, I there took specimens of the following *Hymenoptera*:—*Colletes succincta* and *C. Daviesana*; *Halictus rubicundus*, *H. abdominalis* and *H. flavipes*; *Andrena pubescens*, *A. tridentata*, *A. Afzeliella* and *A. convexiuscula*; *Nomada solidaginis* and *N. alternata*; *Epeolus variegatus*; *Miscus campestris*; *Tachytes pompiliformis*; *Mimesa bicolor* and *Cerceris labiata*.

Note.—Since the observations (pp. 87, 88) on the species of *Polistes* taken at Penzance were written, I have received two of the specimens, which I have carefully compared with all the species with which I am acquainted from North as well as from South America; the Cornwall specimens do not quite agree with any known species, but most closely resemble the *Polistes biguttatus* of Haliday; they are, however, rather larger, and have not the two yellow spots on the basal segment of the abdomen which characterize that species; the thorax is entirely ferruginous with the prothorax narrowly bordered, posteriorly, with yellow, and one specimen has a transverse line on the post-scutellum, and two longitudinal ones on the metathorax, yellow; in *P. biguttatus* the thorax is black with the exception of the sides of the prothorax, which is ferruginous. Under these circumstances I am inclined to wait the results of a further search for specimens next season before I refer it to any species either from North or South America, although I am inclined to the belief of its being a variety either of the *Polistes biguttatus*, or of *P. versicolor* from Brazil, a most abundant and also an extremely variable species. If the insect is an importation, it is an extremely difficult thing even to suggest the means by which it was conveyed to Penzance. I trust the coming season will afford the means of clearing up that which at present is involved in mystery; the most satisfactory elucidation would be the proof of its being an insect indigenous to Cornwall.

LEPIDOPTERA.

Notes on New and Rare British Lepidoptera (excepting Tineina), in 1867.

By H. G. Knaggs, M.D., F.L.S.

The Entomologist who is apt to judge of the quality of a season by the number of "painted ladies," "deaths-heads," or other standards of excellence which may have come within his ken, naturally jumps to the conclusion that the past has been one of the very worst seasons upon record; and, like a true, but disappointed Briton, eases himself of a characteristic growl.

Now, in 1865 we heard comparatively very little grumbling, for "everybody" was up to his eyes with "deaths-heads" and "humming-bird moths," and yet our list of novelties then amounted to but three, one of which was so firmly regarded by its god-papa as an importation that he named it at starting after an Isle of Greece; while, as for the other two, neither Mr. Newman nor I can as yet get the public as a body to swallow either *B. perfumaria* or *A. mancuniata*. What a contrast in point of progress is presented by a comparison of that season with the one just passed! At any rate the following array of novelties does not look much like coming to a stand-still:—

1. *Naclia ancilla*, Linn. (Ent. Soc. Feb. 18).
2. *Fumea crassiorella*, Bruand (Ent. Mo. Mag. iv. 113).
3. *Polia nigrocincta*, Treit. (Ent. Mo. Mag. iv. 112).
4. *Acidalia osseata*, S. V. (Ent. Mo. Mag. iv. 161).
5. *Ebulea catalaunalis*, Dup. (Ent. Mo. Mag. iv. 152).
6. *Scoparia ulmella*, Dale (Ent. Mo. Mag. iii. 217).
7. *Scoparia ingratella*, Zell. (Ent. Mo. Mag. iv. 61).
8. *Catoptria aspidiscana*, Hüb. (Ent. Mo. Mag. iv. 16).
9. *Halonota ravulana*, H.-S. (Ent. Mo. Mag. iv. 61).
10. *Coccyx vernana*, Knaggs (Ent. Mo. Mag. iv. 122).
11. *Pterophorus Hodgkinsoni*, Gregson (Ent. Mo. Mag. iv. 38).

Eleven new British species! exclusive of certain Tineina, of which Mr. Stainton will render an account at another part of this volume. Besides which *Abraxas pantaria* (better than new) has been re-discovered by Mr. Gregson in the Isle of Man, and will have to be re-instated in the next editions of our lists; Mr. Butler has recorded the possibility of *Erebia Euryale* being a native of the Isle of Arran, and more than two or three Macros are still undetermined.

As regards discoveries of hitherto undetected larvæ, '67 does not suffer by comparison with previous seasons; and, though our list of local and scarce captures may not have been generally speaking up to the mark, some exceedingly interesting takes have nevertheless been put upon record.

Is it not something that *Sterrha sacraria* has become a naturalized British subject? This pretty species, which made its *débût* here some thirteen years ago, has now become

generally distributed over the whole country, from Freshwater to Camachgouran, where three examples have been secured; but this is by no means the most curious point in the history of *Sterrha*, the astounding part of the business is, that, while all the captured specimens are all more or less typical of the species as occurring on the Continent, no one has yet been able to rear the ordinary form, all the bred specimens presenting striking peculiarities. It will be within the recollection of our readers that Mr. Hellins was successful in breeding half-a-dozen bewitchingly beautiful imagos, no two of which were alike, and no one of which bore a resemblance to the parent. More recently, indeed quite lately, Mr. Bond has exhibited at the Entomological Society a series—consisting of three females and five males, bred from eggs laid by two moths of the ordinary type, in all of which the ground colour is pale brown, very like that of *Lozogramma petraria*, but varying slightly in intensity; their oblique stripes are black, and in one or two only is there a faint indication of rosiness about the cilia. What *can* be the cause of this phenomenon? is it food? or climate? or —— what? It surely cannot be difference of brood, for *Sterrha* occurs at large in both spring and autumn. Then, again, *Camptogramma fluviata* and *Acidalia rubricata*, but a few years since great rarities, have now become, like *Sterrha*, of tolerably frequent occurrence, and the way in which they have gradually become acclimatized would doubtless, if properly investigated, prove highly instructive. It is in such cases as these that the chronicles of captures of scarce and local species are really serviceable, but to be of use they should also be complete, and this can only be effected by the cordial and general co-operation of British Lepidopterists as a body.

Since the publication of our last Annual, another example

of *Xylina Zinckenii* has been put upon record, a welcome proof that the occurrence of the other was not "accidental." Fresh habitats have been detected for various species, among which the following are particularly worth mention. *T. scoliæforme* at Rannoch, and this opens up another field for operations; and with a knowledge of its habits, there seems to be no earthly reason why, in due course of time, it should not become a sufficiently common insect: already its cousin, *sphegiforme*, is gradually becoming understood, and finding its way into our cabinets. *T. philanthiforme* has been taken at Howth by Mr. Gregson, and there seems little doubt but that the species is very generally distributed. *Endromis versicolora* has turned up in some new localities; Mr. Chappell records that he in the previous season took *Nonagria elymi*, but declines to furnish the whereabouts; *Agrotis saucia*, after a considerable absence, seems to be turning up again "everywhere;" *Agrotis cinerea* on the Cotswolds; *Tæniocampa opima* in South Wales; *Dasycampa rubiginea* in various places at ivy and sallow bloom; *Dianthœcia capsophila* at Conway; *D. cæsia* in the South of Ireland; *Cucullia gnaphalii* at Tilgate; *Heliothis peltigera* in Surrey and South Wales, are all interesting occurrences. *Catocala promissa* too is stated to have been taken at Chelsea, but this seems scarcely credible. *Acidalia rubricata* has occurred in some numbers; *Macaria alternata* at Fairlight; *Eupithecia campanulata* in the Isle of Man; *E. irriguata* near Hastings; *Pempelia subornatella* at Howth, &c., &c. And besides these many other notable captures, such as *Deilephila livornica*, *Chærocampa nerii* and *Celerio*, *Glæa erythrocephala*, *Heliothis armigera*, *Ennomos alniaria*, *Madopa salicalis*, *Nascia cilialis*, with several local and scarce *Tortrices*, have been secured.

The varieties which have turned up during the past season possess considerable interest for those who take delight in these freaks of nature: one, a white-belted variety of *T. culiciforme*, is especially remarkable, the more so that it was taken *in copulâ* with an ordinary red-belted specimen.

LASIOCAMPA CALLUNÆ, Palmer, *versus* QUERCÛS, Linn.

At page 36, vol. iv. Ent. Mo. Mag. Mr. Bond records the fact of his having bred at any rate one decided specimen of *L. quercûs* from one of a number of pupæ of *B. callunæ*, received from Staffordshire. This individual, which with the rest passed the winter in the pupal state, differs in no respect from ordinary *L. quercûs* that have only passed a month or so as pupæ. The darker and stronger markings of *callunæ* cannot, therefore, be due to the longer duration of the pupal stage. Then too neither is so distinct from the other as *L. roboris* is from either. The subject is certainly one for further investigation.

TAPINOSTOLA BONDII, mihi, again.

Respecting this species my friend Mr. Doubleday thus quotes from a letter received from Professor Zeller: "After an examination of the figures and descriptions I cannot suppose it [*Bondii*] to be the *extrema* of Hübner. Treitschke (v. ii. 316), who saw the originals, says, that the cilia, though too darkly coloured, are *really dark*, as if singed, and adds that in the least marked specimens there is always a dark dot in the outer margin which is visible on the underside. Moreover, the *whole underside is white, sparingly dusted in the intervals of the prominent veins.* I hope that when I am in Vienna I shall see the specimens in the Museum and be able to inform you of the real difference of these two species."

This forms a most pleasant sequel to the Notes in last year's Annual, and I trust that my friend Bond will be remembered by his namesake for generations to come.

DIANTHŒCIA BARRETTII, Dbld., *versus* D. CONSPERSA, S.V.

Mr. Newman asks (Entom. 349), "Is not this [*Barrettii*] an Irish variety of *D. conspersa* afflicted with melanism like the Irish *Eupithecia venosata?* All the markings are exactly in the same place; the only difference is in the shade of colour." Further on, at p. 367, Mr. Kirby remarks, "On comparing our series of the two species, I am unable to perceive more than a vague resemblance of markings between the two insects. The shape and position of the pale markings do not correspond, nor are all these represented in both species." I well remember having it seriously pointed out to me that *D. cæsia* and *D. albimacula* were both varieties of *D. conspersa!* *Conspersa* must, indeed be a variable species.

ACIDALIA PINGUEDINATA, Zeller, *versus* A. MANCUNIATA, mihi.

Mr. Newman having been much pressed to give an opinion (Entom. 227) remarks, "Both the Lancashire insects are without question the *Acidalia pinguedinata* of Zeller, *mancuniata* being females, *veterata* males; if therefore any name be used to designate the supposed species, it must be the *pinguedinata* of Zeller; but after the fullest investigation I am able to give the subject, I am unable to find any character of larva, life-history or imago, by which either of the new species can be separated from *Acidalia subsericeata* of Haworth." I would remind the readers of the Annual that two years ago Mr. Buckler very clearly showed that the larva of *mancuniata* differed very considerably from that of

subsericeata. Now, if *asbestaria* be a variety of *pinguedinata*, (see M. Guenée's work,) then the latter also should be a variety of *subsericeata*, for M. Millière has shown pretty conclusively that the larvæ of *subsericeata* and *asbestaria* are identical.

ACIDALIA INTERJECTARIA, Boisd., and OSSEATA, S. V.

It appears that the *osseata* of our cabinets (vide Stainton's "Manual") is the *interjectaria* of Boisd., or, according to Staudinger, the *dilutaria* of Hübner and Lederer. In making the above discovery Mr. Doubleday finds that we also possess the true *osseata*, of which an account will be given further on. By the way I made a stupid blunder (and I thank Mr. Doubleday for correcting me) in translating from M. Guenée's grand work the following: "*elle disparaît quand osseata commence.*" I hastily took it to refer to the species—not to time, and wrote off accordingly to M. Guenée "* * * *vous confirmiez l'opinion de M. Delaharpe que les deux* (*osseata et interjectaria*) *se confondent. Ici nous n'avons certainement aucune osseata laquelle est rouge sur les côtes. Voulez-vous avoir la bonté de me dire aussi exactement que possible quel couleur vous voulez indiquer par rouge?* * * *" to which M. Guenée briefly replied: "*Quant à l'osseata la côte est toujours rouge de la couleur à peu-près de vos timbres d'un 'penny.'*"

PYRAUSTA OSTRINALIS, Hüb., and P. PURPURALIS, Linn.

Of *Botys* (*Pyrausta*) *ostrinalis* Professor Zeller (Stett. Ent. Zeit. 1867, p. 189) remarks as follows: "That this is considered a distinct species has always surprised me. It is surely nothing more than a variety of *purpuralis*, with the ordinary form of which it flies and with which it is connected

by the slightest transitions." Staudinger, too, in his Catalogue makes *ostrinalis* a variety of *purpuralis*.

NEW BRITISH SPECIES IN 1867.

Naclia ancilla, Linn.

An example of this singularly interesting species has been captured at Worthing, by Mr. Wildman, on whose behalf it was exhibited, by Mr. Newman, at the second February Meeting of the Entomological Society of London.

Herrich-Schäffer's family *Syntomides* contains the two genera *Syntomis* and *Naclia:* these appear to be a connecting link between the *Zygænidæ* and *Lithosidæ*.

There is something about *Naclia* that reminds one forcibly of *Heterogenea asellus*, and it may be well to consider whether the latter should not come in our cabinets with *Naclia* after the *Zygænidæ*.

The expanse of the fore wings of the male *N. ancilla* is about three-fourths of an inch; the fore-wings are dull brown, with a slightly diaphanous appearance, and without any spots or markings; the hind-wings are dull yellowish, being dark along the hind margin, especially towards the apical angle, and with a dark mark from the discoidal cell to the costa; abdomen ochreous, with dark dorsal dots on the segments.

The female expands from an inch to an inch and a quarter; the fore-wings are pale brown, with three white spots arranged in a direction parallel to the apical margin, the two lowermost being close together; the hind wings are darker, and without apparent markings; abdomen ochreous-yellow; antennæ simple and pointed in both sexes.

A species (*N. dèpunctata*) comes very close to it, but its

colours are brighter; it is more thickly clothed, and the fore-wings of the male are spotted, and it has spots towards the base of the wing. These two species appear to have got mixed up in the National collection.

Fumea crassiorella, Bruand.

At page 113, vol. iv. of the Entomologist's Monthly Magazine, my friend Mr. Bond thus records the discovery of this interesting little novelty: "I have seen several specimens of a *Fumea* this year, which proves to be *F. crassiorella*, Bruand. The ♂s are larger than either *F. nitidella* or *roboricolella*, to which group they belong. The ♀ is also larger and more obese. I have had males in my cabinet for some time, but it was only this year, by breeding the females, that I was enabled to make out the species; there are good figures in Bruand's Monograph, fig. 68, *a* ♂, *b* ♀ plate 2."

At page 133 of the same periodical I have recorded the occurrence of this *Fumea* at Hornsey Wood, where my son and I took a number of cases in a short time, from which, in due course, the perfect insects (♂s and ♀s) emerged. The species has been bred by Mr. Mitford, and also by Mr. Greening, to whom I sent a supply of cases.

Polia nigrocincta, Treitschke (Fig. 1).

For this handsome addition to our *Noctuina* we are indebted to Mr. Greening, who thus records its occurrence in the pages of "The Entomologist's Monthly Magazine" (vol. iv. 112): "On Tuesday (Aug. 22), I had the pleasure of breeding a new British *Noctua*. The larva from which I bred it fed on *Silene*, and was quite new to me; and when the moth emerged I felt positive that it was a fine addition to our lists. Mr. Doubleday, to whom I have sent

the specimen, informs me that it is *Polia nigrocincta*." It is most interesting that Mr. Greening should have had the pleasure of first making acquaintance with the larva, and he has shown his usual acumen in predicting his captured larva to be that of a species new to us, for there are few, if any, Lepidopterists in this country who have a better eye for specific distinctions than the gentleman in question.

Mr. Hopley (Ent. Mo. Mag. vol. iv. p. 132), too, records the occurrence of another specimen (a ♀), which was taken by Mrs. Fisher, by daylight, from off the window of a lighthouse in Cornwall, about the middle of August, 1862. This interesting example, which Mr. Hopley had placed at the head of his series of *P. flavicincta*, as a strange variety of that species, had been unhesitatingly pronounced by Mr. Greening, who saw it some year or so ago, to be altogether new to our lists.

Polia nigrocincta is placed by Dr. Staudinger between *flavicincta*, S. V., and *chi*, Linn., *ruficincta*, Hüb., and *cærulescens*, Boisd., intervening between it and the former, *argillaceago*, Hüb., *canescens*, Boisd., and *suda*, Hüb., between it and the latter. In general cut, as well as in the characters of the hind-wings, it appears to me to be more nearly related to *chi* than to *flavicincta*. The fore-wings in colouration remind one of those of *flavicincta*, though they have more the cut of *chi*, but the hind-wings of the male bear great resemblance to those of *chi*, though they are more strongly marked at the margin; the hind-wings of the female are darker than in *chi* ♀, and have white cilia.

M. Guenée also places it between *flavicincta* and *chi*, with some species intervening. He remarks that it is as common as, but less generally distributed than, *flavicincta*, that its time of appearance is July and August, and that it varies excessively. It will be seen from the figure given at

the commencement of this volume that Mr. Greening's example (a ♂), is a variety in which a black central shade is very evident.

Acidalia osseata, S. V.

It appearing that we have two species under this name in our cabinets, and that *interjectaria* is the one which has hitherto been known to us by the name of *osseata* (vide description in Stainton's Manual), the true *osseata* (as well as *interjectaria*) is now admitted to our lists upon the authority of Mr. Doubleday, who thus writes concerning it at p. 161, vol. iv. Ent. Mo. Mag.: "*Acidalia osseata* is rare here, and I only know of one spot where it occurs. Specimens taken a few years since, which were evidently very fresh, had the costa decidedly ferruginous; but this colour faded soon after they were dead, as it does in some *Eupitheciæ*, &c. The ground colour of the wings was also yellower than in any specimens of *interjectaria* that I have seen."

"The late J. F. Stephens mentions the red costa of *osseata* in his 'Illustrations,' but, as is well known, many of his descriptions were copied, without acknowledgment, from the works of continental authors."

* * * * * *

M. Guenée has stated very decidedly that in *osseata* the costa is always "*rouge*," a colour which he likens to that of an English penny postage-stamp or thereabouts—somewhat that of the ground colour of *Hyria auroraria* in point of fact. But still in the National collection (although two other species are mixed up with *osseata*) specimens purchased from the late Mr. Becker, and coming from Germany, though not unlike *interjectaria* are certainly brighter (say tiger-coloured) on the costa than our speci-

mens, and Italian examples presented by Dr. Leach have also ferruginous costæ, the other part of the wings being almost without markings; the latter specimens, too, seem a trifle larger.

I anxiously await the fulfilment of M. Guenée's kind promise to forward me the typical *osseata*.

Ebulea catalaunalis, Dup. (Fig. 4).

At page 152, vol. iv. Entomologist's Monthly Magazine, Mr. W. C. Boyd thus writes, "I captured it in our garden at Cheshunt, September 18th, flying over a flower-bed in the dusk of the evening. I should probably not have paid much attention to it, taking it to be only *P. forficalis*, which was extremely abundant that evening, if I had not been struck with its peculiar flight, hovering backwards and forwards more like the common house-fly than anything else I know."

Ebulea catalaunalis has been before reputed British, but erroneously, it having been supposed synonymous with *Nascia cilialis*, Hüb.

This species at first sight is not very dissimilar from *Botys ferrugalis*, and is about the same size. But if one imagines a small sharp and narrow-winged *N. cilialis*, a much better idea of it is gathered. Owing to the paleness of the ground colour, the insect has a rather worn appearance, even in fine specimens. The ground colour of the fore-wings is pale sulphur, the nervures being mapped out with ferruginous, an accumulation of which tint occurs towards the hind margin: at the base of the cilia is a dark, almost black line; the fringes themselves are cream-coloured: the hind-wings are whitish, but ferruginous to-

wards the hind margin, especially near the apex. Abdomen and antennæ long. Sexes very much alike.

E. catalaunalis is an European species, but has also occurred in India, those from the latter country presenting no points of difference.

It is scarcely a true *Ebulea*, but as most of the characters agree with the members of that genus, it has not been considered advisable to erect a new genus for its reception.

Scoparia ulmella, Dale.

Under Mr. Dale's manuscript name of *ulmella*, I have endeavoured at page 217, vol. iii. of the Entomologist's Monthly Magazine, to characterize a hitherto unacknowledged *new Scoparia;* three examples of which were taken by Mr. Dale himself many years ago at East Meon.

S. ulmella bears some affinity to *S. dubitalis*, chiefly by reason of the 8-mark being dumb-bell-shaped, and filled in with ochreous, but its slender conformation precludes the possibility of its being connected with that species. The characters of the 8-mark separate it from the *mercurella* group—and it is with equal ease distinguished from the *angustea* group by the character of the first line.

The time of appearance of this rather anomalous creature is toward the middle of July.

Scoparia ingratella, Zeller.

At page 61 of the Entomologist's Monthly Magazine, vol. iv. I have brought forward this species as an inhabitant of the Folkestone Warren, on the authority of Dr. Staudinger of Dresden. The insect is certainly the *ingratella* of the Continent, and closely allied to *S. dubitalis*, which is an excessively variable species, and from which it differs in size,

being larger; in the black markings being absent or very faint; and also in its habits, the habit of *ingratella*, in its Folkestone haunts at any rate, being to rest on lumps of chalk, &c., &c. I had for some time suspected it to be distinct from *dubitalis*. It is easily disturbed by day in June and July, and is rather abundant.

Catoptria aspidiscana, Hüb.

Mr. Hodgkinson writes (Ent. Mo. Mag., vol. iv. p. 16), that he has taken this species for some years flying in company with *Eriopsela quadrana*. The captures have been identified by Mr. Doubleday. *C. aspidiscana* is, I believe, a very variable species; but not having at present had the advantage of seeing a long series, I can only judge of it from two specimens kindly presented to me by my old friend, Mr. Harrison of Manchester. These appear to be excessively closely related to the insect which goes in our cabinets by the name *Catoptria modestana*, H.-S. (dark variety), another exceedingly variable species.

By the way Dr. Staudinger gives *modestana*, H.-S., as a synonym of *modicana*, Zell., bringing it in, in the subgenus *Pædisca*, soon after *Hohenwartiana*, while he places *aspidiscana* with *Scopoliana*, *hypericana*, &c., further on in the subgenus *Grapholitha*.

Halonota (*Grapholitha*), ravulana, H.-S. (Fig. 2).

This little novelty, which has been discovered in this country by Mr. E. G. Meek, appears to be most nearly related to *Halonota obscurana*, H.-S., of which it is about the size. The ground colour of the fore-wings is blackish, with a bluish tint, mottled, and indistinctly traversed by blacker lines and *strigæ;* towards the hind-margin is a

cluster of short black longitudinal lines. The dorsal patch is white and dusted with scales transversely in such a manner that these, in fine specimens, assume the form of indistinct lines. The costal dots are pale and indistinct, and towards the apex three or four blacker spots are noticed on the costa. It is a difficult insect to describe, and the figure in our plate will give a better idea than can be conveyed by words.

One example of *ravulana* was secured by Mr. Meek in 1866; but last June, by beating undergrowth in Darenth Wood, he obtained several more. I am indebted to Drs. Staudinger and Wocke for furnishing me with the name of this species. (See Ent. Mo. Mag. vol. iv. p. 61.)

Coccyx vernana, mihi.

This obscure little *Coccyx*, which reminds one very much of a small dark narrow-winged variety of *C. argyrana*, was brought forward in the Entomologist's Monthly Magazine, vol. iv. p. 122.

Three specimens of it were captured by Mr. E. G. Meek, in Darenth Wood, towards the end of March, 1866. Mr. Meek says that its habits are similar to those of *C. splendidulana*, and that it appears about a month sooner than *argyrana*.

Pterophorus Hodgkinsoni, Gregson.

Of this, Mr. Hodgkinson (Ent. Mo. Mag. vol. iv. p. 38), observes that he captured eight examples at Witherslack, and adds, "I took three specimens in 1863; it appears to be a very early species, and this may account for my not meeting with it since 1863, as I seldom go there so early in the season. Any one who has been in the habit of looking at plumes, may readily see the difference when the insect is at rest. Four of the specimens are very fine; I obtained a few eggs. The species is closely allied to *P. Loewii*."

A Table of Local and Scarce British Lepidoptera for 1867.

(Arrangement of "Stainton's Manual.")

Species.	Locality.	Captor.	Date.	Reference.	Remarks.
Colias Edusa (var. Helice) ...	Margate	H. R. Cox ...	August ...	E. M. M. 132 ...	In a clover field.
,, ,, ...	Folkestone	H. Ullyett ...	Aug. 14 ...	E. M. M. 133	
,, hyale	Margate	H. R. Cox ...	August ...	E. M. M. 132 ...	In a clover field.
Leucophasia sinapis	Coggeshall	W. H. Harwood ...	...	In litt.	
Erebia Epiphron	Rannoch	J. & J. B. Blackburn	August ...	E. M. M. 139 ...	At 1000 feet elevation.
Limenitis sibilla	Haslemere	C. G. Barrett	May... ...	E. M. M. 13 ...	Several larvæ found.
Lycæna Artaxerxes	Perth	J. Stewart ...	July ...	Dr. B. W. in litt.	Very scarce.
,, Arion	Gloucester	H. W. Marsden ...	July 20 ...	Entom. 314	
Thecla betulæ	Essex	T. Eedle... ...	July ...	T. E. in litt.	
,, ,, ...	...	A. Edmonds ...	...	In litt. ...	Bred.
Procris Geryon	Cotswolds	Rev. E. H. Todd ...	May 24 ...	E. M. M. 184	
,, ,, ...	Cotswolds	Rev. H. Roberts ...	June (e.) ...	E. M. M. 187 ...	Near Broadway, Beacon.
Acherontia Atropos	Perth	...	...	Dr. B. W. in litt.	One specimen.
Sphinx convolvuli	Perth	"A boy" ...	Sept. ...	Dr. B. W. in litt.	In the middle of the town.
Deilephila lineata	Haslemere	Miss R. Chandler...	May 11 ...	E. M. M. 12 ...	Flying over lilac.
,, ,, ...	Ventnor	J. Keet	...	Entom. 288 ...	At light.
,, ,, ...	Brighton	...	May 15 ...	Entom. 289 ...	At rest, and three others.
Chœrocampa nerii	Sheffield	...	Sept. 14 ...	Entom. 363 ...	Recorded by W. Hydes.
,, celerio	Coggeshall	H. Lawrence			
,, ,, ...	Isle of Wight ...	J. Ingram ...	Autumn ...	E. M. M. 213 ...	Seen at ivy.
,, ,, ...	Ipswich	...	Aug. 28 ...	Entom. 345 ...	At rest, 6 p.m.
,, ,, ...	Isle of Wight... ..	W. M. Frost ...	Sept. 21 ...	Entom. 354 ...	Came to light.
,, ,, ...	Taunton	W. Bidgood ...	Sept. 17 ...	Entom. 263 ...	At light.
,, porcellus ...	Perth	J. Stewart ...	June ...	Dr. B. W. in litt.	Bred—larvæ found also.
Trochilium chrysidiforme ...	Folkestone	E. G. Meek ...	June, 1866 ...	E. M. M. 13 ...	Larvæ discovered in roots of sorrel and dock. Bred.
,, sphegiforme ...	Tilgate	E. G. Meek ...	June ...	In litt. ...	Scarce. Bred and captured.
,, scoliæforme ...	Rannoch	B. Cooke ...	July 15 ...	Entom. 314 ...	A fine ♀.

Trochilium philanthiforme	Isle of Man	E. Birchall	June	Entom. 312	Flying in sunshine.
„ „	Howth	C. S. Gregson	June & July	E. M. M. 70	New locality.
Dicranura furcula	Rannoch	T. & J. B. Blackburn	August	E. M. M. 139	Young larvæ abundant.
„ „	Colchester	W. H. Harwood		In litt.	Larvæ also taken.
„ „	Tilgate	E. G. Meek	Sept.	In litt.	Larvæ on sallow.
Drymonia chaonia	Colchester	W. H. Harwood		In litt.	A number of larvæ.
„ dodonæa	Ipswich	T. Last		Entom. 189	Bred.
„ „	Colchester	W. H. Harwood		In litt.	Several larvæ.
Leiocampa dictœoides	South Wales	J. T. D. Llewelyn	April	E. M. M. 263	New locality.
„ „	Near Gravesend	H. Vaughan	Sept.	In litt.	Larvæ on birch.
„ „	Colchester	W. H. Harwood		In litt.	
Philodontis palpina	Kentish Town	H. Vaughan	June	In litt.	At light.
Lophopteryx carmelita	Haslemere	C. G. Barrett	April 30	E. M. M. 12	A lovely pair.
Peridea trepida	Colchester	W. H. Harwood		In litt.	And about a dozen larvæ.
Clostera curtula	Colchester	W. H. Harwood		In litt.	Larvæ not scarce.
Lælia cœnosa	"The Fens"	T. Eedle	August	In litt.	
Lithosia helvola	Box Hill	P. C. Wormald	July & Aug.	In litt.	About a dozen from yew, &c.
„ stramineola	Headley Lane	W. Rogers	Aug. 12	In litt.	By beating.
„ „	"The Fens"	T. Eedle	August	In litt.	
„ complana	Dartford Heath	P. C. Wormald	July 25	In litt.	23 specimens on "Baldwyn's fence."
„ „	Shirley	H. Vaughan	July & Aug.	In litt.	Mothing on the heath.
„ caniola	Howth	E. Birchall		In litt.	
„ pygmæola	Deal	H. J. Harding		Entom. 354	Several specimens.
„ quadra	Woolmer F.	C. G. Barrett	July	In litt.	Beaten from oak.
Nudaria senex	"The Fens"	T. Eedle	August	In litt.	
„ „	Near York	T. J. Carrington	July 14	In litt.	
Spilosoma urticæ	Essex	T. Eedle	June	In litt.	
Endromis versicolora	Worcestershire	E. S. Haines	June 3	E. M. M. 64	In the larval state.
„ „	Petersfield	F. Bond	May 5	E. M. M. 12	New locality.
„ „	Ipswich	T. Last			Five ♂s flying.
Drepana hamula	Dulwich	J. P. Barrett			At light.
„ „	Hampstead	P. C. Wormald	June 6	In litt.	
„ unguicula	Epping	P. C. Wormald	July 20	In litt.	Several by beating beech.
Psyche opacella	Woolmer F.	C. G. Barrett	May	In litt.	Cases on oak trees.
„ calvella	Rannoch	T. & J. B. Blackburn	August	E. M. M. 139	New locality.
„ „	Hampstead	R. McLachlan	May 14	E. M. M. 69	A few cases.
Fumea radiella	Near Gravesend	H. Vaughan	June	In litt.	New locality?

Local and Scarce British Lepidoptera for 1867—*continued.*

Species.	Locality.	Captor.	Date.	Reference.	Remarks.
Limacodes asellus	Loughton?	T. Eedle ...	June ...	E. M. M. 69	
„ testudo	Guestling	Rev. E. N. Bloomfield	June (b.) ...	E. M. M. 207 ...	One specimen.
„ „	Woolmer F.	C. G. Barrett ...	July ...	In litt. ...	Flying by day among oak.
Cymatophora fluctuosa ...	Guestling	Rev. E. N. Bloomfield	June (b.) ...	E. M. M. 207 ...	One specimen.
„ ...	Kent	T. Eedle ...	July ...	In litt.	
„ or ...	Near Hastings ...	Rev. E. N. Bloomfield	June 12 ...	In litt. ...	One at sugar.
„ ocularis ...	Worcester	A. Edmunds ...	May, 1866 ...	E. M. M. 185 ...	Bred.
„ ridens ...	Guestling	Rev. E. N. Bloomfield	April 23 ...	E. M. M. 206 ...	One at rest, another at sugar.
Diphthera orion	Ipswich	T. Last	...	Entom. 189 ...	Nine taken.
„ „	Colchester	W. H. Harwood ...	...	In litt. ...	About a dozen larvæ
Acronycta tridens	Haslemere	C. G. Barrett ...	...	In litt. ...	Bred.
„ leporina	Tilgate	E. G. Meek ...	Sept. ...	In litt. ...	Larvæ on birch.
„ „	Near Hastings ...	Rev. E. N. Bloomfield	June 1 ...	In litt.	
„ „	Worcester	A. Edmunds ...	...	In litt.	
Leucania straminea	Herne Bay	C. J. Buckmaster...	Aug. (e.) ...	E. M. M. 133 ...	Pretty common.
„ „	Ipswich	T. Last	...	Entom. 189	
Tapinostola Bondii	Folkestone	H. Vaughan ...	July ...	In litt. ...	Towards Sandgate
Nonagria elymi	... ...	J. Chappell ...	Last season	E. M. M. 206 ...	No locality given.
Senta ulvæ	Ipswich	T. Last	...	Entom. 189	
Xylophasia scolopacina ...	Colchester	W. H. Harwood ...	...	In litt.	
Xylomyges conspicillaris ...	Worcester	Rev. E. H. Todd ...	March (e.) ...	E. M. M. 184 ...	Bred from a pupa dug.
„ „ ...	Worcester	Rev. E. Horton ...	April 26 ...	E. M. M. 16 ...	Bred.
Aporophila australis	Deal	H. J. Harding ...	...	Entom. 354 ...	Freely at sugar.
Luperina cæspitis	Cotswolds	Rev. E. H. Todd ...	...	...	At light.
„ „	Colchester	W. H. Harwood ...	...	In litt.	
Mamestra albicolon	Wallasey	E. L. Ragonot ...	...	In litt. ...	Several at sugar.
... ...	South Wales	J. T. D. Llewelyn...	June ...	E. M. M. 263	

Apamea ophiogramma ...	Near London... ...	T. Eedle ...	June ...	In litt.		
Agrotis saucia...	Perth	J. Stewart ...	October ...	Dr. B. W. in litt.		At sugar.
,, ,, ...	Worcester	A. Edmunds ...	...	In litt.		
,, ,, ...	Exeter	H. D'Orville ...	Aug. & Sept.	Rev. J. H. in litt.		At sugar.
,, ,, ...	Bidston	E. L. Ragonot ...	...	In litt.	...	A fine series at reed flowers.
,, ,, ...	Haslemere	C. G. Barrett ...	Sept. ...	In litt.	...	Beaten from thatch.
,, ,, ...	Colchester	W. H. Harwood ...	Sept.? ...	In litt.		
,, cinerea	Cotswolds	Rev. E. H. Todd ...	...	E. M. M. 210	...	Two at light.
,, ripæ	South Wales	J. T. D. Llewelyn	July ...	E. M. M. 263	...	New locality.
,, cursoria	Birkenhead	F. L. Ragonot ...	...	In litt.	...	Common.
,, obelisca	Cotswolds	Rev. E. H. Todd ...	...	E. M. M. 210		
,, præcox	South Wales	J. T. D. Llewelyn	July ...	E. M. M. 263		
,, ,, ...	Crosby	E. L. Ragonot ...	...	In litt.	...	Good series ; large specimens.
,, agathina	Near York	T. J. Carrington ...	Aug. 24 ...	In litt.		
,, ravida	Cotswolds	Rev. E. H. Todd ...	...	E. M. M. 210		
,, pyrophila	Northleach	Rev. E. H. Todd ...	...	Entom. 203	...	At sugar: also recorded in E. M. M.
Noctua dahlii...	Hastings	Rev. E. N. Bloomfield	Aug. 9 ...	In litt.	...	Also several 2 years ago.
,, ,, ...	Ipswich	T. Last	...	Entom. 189	...	One.
Tæniocampa leucographa ...	Croydon	C. J. Buckmaster...	March ...	E. M. M. 68	...	At sallows.
,, opima	Birkenhead	E. L. Ragonot ...	...	In litt.	...	Two at sallows.
,, ,, ...	South Wales	J. T. D. Llewelyn	April ...	E. M. M. 263	...	New locality.
,, ,, ...	Near York	T. J. Carrington ...	April 5 ...	In litt.	...	Several at sallows.
,, populeti ...	Croydon	C. J. Buckmaster...	April 4 ...	E. M. M. 68	...	At sallows.
,, ,, ...	Worcester	A. Edmunds ...	...	In litt.	...	Three bred.
,, ,, ...	Near York	T. J. Carrington ...	April 18 ...	In litt.	...	Several at sallows.
,, miniosa ...	Hastings	Rev. E. N. Bloomfield	April 3 ...	In litt.	...	Three at sallows.
,, ,, ...	Darenth	E. G. Meek ...	April ...	In litt.	...	At sallows.
,, ,, ...	Haslemere	C. G. Barrett ...	April ...	In litt.	...	At sallows.
Glæa erythrocephala ...	Canterbury	—— Parry ...	...	Entom. 228	...	Five specimens.
Dasycampa rubiginea ...	Exeter	Rev. J. Hellins ...	...	In litt.	...	One at sallows.
,, ,, ...	Isle of Wight... ...	J. Ingram	Spring ...	E. M. M. 213	...	Two at sallows.
,, ,, ...	Bristol	A. E. Hudd ...	Oct. 27 & 30	E. M. M. 186	...	At ivy bloom.
,, ,, ...	Isle of Wight... ...	J. Ingram ...	Autumn ...	E. M. M. 213	...	Six at ivy bloom.
Hoporina croceago	Clapham	W. Rogers ...	Oct. 18 ...	In litt.	...	At ivy.
,, ,, ...	Croydon	J. B. Blackburn ...	March ...	E. M. M. 68	...	At sallows.

Local and Scarce British Lepidoptera for 1867—*continued.*

Species.	Locality.	Captor.	Date.	Reference.	Remarks.
Hoporina croceago	Guestling	Rev. E. N. Bloomfield	March 28 ...	E. M. M. 206 ...	A few at sallows.
,, ,, ...	Darenth	E. G. Meek ...	April ...	In litt. ...	At sallows.
Xanthia aurago	Dorking	Hon. S. Canning ...	...	E. M. M. 208 ...	At sugar.
,, ,, ...	Bristol	A. E. Hudd ...	Oct. 27 & 30	E. M. M. 186 ...	Two or three at ivy.
Cirrhædia xerampelina ...	Worcester	A. Edmunds ...	August ...	E. M. M. 185 ...	Bred.
,, ,, ...	Ipswich	T. Last	...	Entom. 189	
Tethea retusa	Exeter	Rev. J. Hellins ...	...	In litt. ...	Larvæ taken.
,, ,, ...	South Wales	J. T. D. Llewelyn	...	E. M. M. 92	
,, ,, ...	Worcester	A. Edmunds ...	...	In litt. ...	Bred one specimen.
,, subtusa	Kew	P. C. Wormald ...	July ...	In litt. ...	Also by J.S.Pryer, at Highgate.
Cosmia pyralina	Saxmundham ...	Rev. E. N. Bloomfield	July 16 ...	In litt. ...	Bred.
Eremobia ochroleuca ...	Herne Bay	H. Vaughan ...	August ...	In litt. ...	At teasel and other flowers.
Dianthæcia capsophila ...	Howth...	W. F. Kirby ...	June 27 ...	E. M. M. 90 ...	One specimen.
,, ,, ...	Howth...	E. Birchall ...	June ...	In litt. ...	Also at Douglas.
,, ,, ...	Isle of Man	H. Vaughan ...	June 27 ...	E. M. M. 68 ...	Larva again in 1867.
,, ,, ...	Conway	J. Chappell ...	June ...	E. M. M. 206 ...	Bred.
,, Barrettii ...	Howth	W. F. Kirby ...	June 27 ...	E. M. M. 90 ...	Six specimens.
,, ,, ...	Howth	E. Birchall ...	June ...	Entom. 301	
,, cæsia ...	South of Ireland ...	W. Wright ...	July ...	E. M. M. 91 ...	New locality.
,, ,, ...	Douglas	E. Birchall ...	June ...	In litt.	
Epunda lutulenta	Surrey	T. Eedle	August ...	In litt.	
" viminalis	Battersea	W. Rogers ...	June ...	In litt. ...	Larvæ taken.
Phlogophora empyrea ...	Near Lewes	G. H. Verrall ...	...	Verb. com. ...	Scarce.
Apleeta occulta	Rannoch	T.& J. B. Blackburn	August ...	E. M. M. 139 ...	By searching stumps.
,, ,, ...	South Wales	J. T. D. Llewelyn	July ...	E. M. M. 263 ...	New locality.
,, tincta	Addington	W. Rogers ...	July 12 ...	In litt. ...	Off the Bishop's fenec.
,, ,, ...	Hastings	Rev. E. N. Bloomfield	June 13 ...	In litt. ...	One at sugar.
Hadena genistæ	Addington	W. Rogers ...	June 28 ...	In litt. ...	Off the Bishop's fence.
,, suasa	Worcester	A. Edmunds ...	...	In litt.	
Xylina Zinckenii	Near Dorking ...	Hon. S. Canning ...	October, 1866	E. M. M. 285 ...	At sugar.

Xylina semibrunnea...	Worcester ...	A. Edmunds ...	October, 1866	E. M. M. 185 ...	At sugar.
„ „ ...	Bristol ...	A. E. Hudd ...	October, 1866	E. M. M. 186 ...	A few at ivy.
Cucullia scrophulariæ	Ponder's End...	H. Vaughan ...	July ...	In litt. ...	Larvæ on scrophularia.
„ asteris ...	Tilgate ...	E. G. Meek ...	Sept. ...	In litt. ...	Bred.
„ gnaphalii ...	Tilgate ...	E. G. Meek ...	June 2 ...	E. M. M. 114 ...	Larva taken last autumn.
„ chamomillæ	Worcester ...	A. Edmunds ...	July, 1866 ...	E. M. M. 185 ...	New locality.
„ „ ...	Bidston ...	F. Archer ...	...	E. L. R. in litt....	At light.
Heliothis armigera ...	Babbicombe ...	T. Terry ...	Oct. 16 ...	E. M. M. 140 ...	Two at ivy.
„ peltigera ...	Haslemere ...	C. G. Barrett ...	Aug. 22 ...	E. M. M. 160 ...	In a clover field.
„ „ ...	South Wales...	J. T. D. Llewelyn	July 22 ...	E. M. M. 91 ...	On the sand hills.
„ dipsacea ...	Cotswolds ...	Rev. E. H. Todd ...	June 22 ...	E. M. M. 184 ...	Flying in sun over flowers.
Agrophila sulphuralis	Bury	J. W. Whelan ...	June ...	E. M. M. 186 ...	Three specimens.
Acontia luctuosa ...	Cotswolds ...	Rev. E. H. Todd ...	June, 1866 ...	E. M. M. 184 ...	Over thyme.
„ „ ...	Bury	Rev. A. H. Wratislau	...	Entom. 199 ...	One.
„ „ ...	Near Gravesend	H. Vaughan ...	June ...	E. M. M. ...	One, a fine variety.
„ „ ...	Surrey... ...	T. Eedle	June ...	In litt.	
Erastria venustula ...	Loughton ? ...	T. Eedle	June ...	E. M. M. 69	
Hydrelia unca ...	South Wales...	J. T. D. Llewelyn	May ...	E. M. M. 263	
„ „ ...	Near York ...	T. J. Carrington ...	July 4 ...	In litt.	
Brephos notha ...	Ipswich ...	T. Last	...	Entom. 189 ...	Thirteen specimens.
Plusia bractea ...	Perth	J. Stewart ...	July ...	Dr. B. W. in litt.	Also by W. Herd.
„ interrogationis	Rannoch ...	T. & J. B. Blackburn	August ...	E. M. M. 139 ...	Flying at flowers.
„ „ ...	Perth	J. Stewart ...	...	Dr. B. W. in litt.	Also by G. J. Bruce.
Stilbia anomala ...	Ilfracombe ...	J. S. Masterman ...	...	G. B. L. in litt....	
„ „ ...	Rannoch ...	T. & J. B. Blackburn	August ...	E. M. M. 139 ...	New locality.
Catocala promissa ? ...	Chelsea ...	C. B. Walland ...	Aug. 21 ...	Entom. 350 ...	? C. nupta.
Eurymene dolabraria	Hampstead ...	H. Vaughan ...	June ...	In litt. ...	Flying at dusk.
„ „	Ipswich ...	T. Last	...	Entom. 189 ...	One.
„ „	Croydon ...	J. P. Barrett ...	...	Entom. 330 ...	Also at Epping.
Pericallia syringaria...	Dorking ...	Hon. S. Canning ...	...	E. M. M. 208 ...	In lanes.
„ „ ...	... ...	P. C. Wormald			
„ „ ...	Colchester ...	W. H. Harwood ...	...	In litt. ...	One specimen.
„ „ ...	Haslemere ...	C. G. Barrett ...	May ...	E. M. M. 160 ...	Larvæ and pupæ.
Selenia lunaria ...	South Wales ...	J. T. D. Llewelyn	May ...	E. M. M. 263	
„ „ ...	Worcester ...	A. Edmunds ...	...	In litt. ...	Bred.
„ „ ...	Guestling ...	Rev. E. N. Bloomfield	June (b.) ...	E. M. M. 207 ...	One specimen.

Local and Scarce British Lepidoptera for 1867—*continued.*

Species.	Locality.	Captor.	Date.	Reference.	Remarks.
Selenia lunaria	Essex	T. Eedle	June ...	In litt.	
„ illustraria	Edmonton	J. W. Downing ...	May ...	E. M. M. 15 ...	New locality.
„ „	Malvern	Rev. E. H. Todd ...	Aug. 15 ...	E. M. M. 210 ...	One.
„ „	South Wales	J. T. D. Llewelyn	May ...	E. M. M. 268	
„ „	Wimbledon	J. B. Blackburn ...	May ...	E. M. M. 68	
Ennomos alniaria	Deal	H. J. Harding ...	...	Entom. 354 ...	Another ♂ at light.
„ tiliaria	Kildare County ...	Hon. E. Lawless ...	August ...	E. M. M. 187 ...	New to Ireland.
„ fuscantaria ...	Dorking	Hon. S. Canning ...	...	E. M. M. 208	
„ „ ...	Peckham	J. P. Barrett ...	...	Entom. 189 ...	At light.
„ „ ...	Colchester	W. H. Harwood ...	...	In litt. ...	Several specimens.
„ „ ...	Surrey	T. Eedle ...	Sept. ...	In litt.	
„ erosaria ...	Colchester	W. H. Harwood ...	...	In litt. ...	Five or six.
Nyssia hispidaria	Richmond	S. A. Davis ...	Feb. 9 ...	E. M. M. 263 ...	Rather early.
Boarmia abietaria	Surrey...	T. Eedle ...	June ...	In litt.	
„ consortaria	Kent	T. Eedle ...	July ...	In litt.	
Tephrosia extersaria... ...	Guestling	Rev. E. N. Bloomfield	June 15 ...	E. M. M. 207 ...	One specimen.
„ „	Worcester	A. Edmunds ...	June? ...	In litt. ...	Five specimens.
Dasydia obfuscata	Rannoch	T. & J. B. Blackburn	August ...	E. M. M. 139 ...	Rather plentifully at flowers.
Psodos trepidaria	Rannoch	T. & J. B. Blackburn	August ...	E. M. M. 139 ...	On mountain tops.
Geometra papilionaria ...	Perth	W. Herd... ...	August ...	Dr. B. W. in litt.	
„ „ ...	Worcester	A. Edmunds ...	...	In litt. ...	Bred.
„ „ ...	Croydon	W. H. Morris ...	July ...	H. V. in litt. ...	Flying at dusk.
„ „ ...	Colchester	W. H. Harwood ...	...	In litt.	
Iodis vernaria	Croydon	H. Vaughan ...	July ...	In litt. ...	Amongst clematis.
„ „	Malvern	Rev. E. H. Todd ...	July 11 ...	E. M. M. 210 ...	Larvæ found also.
Phorodesma bajularia ...	Dorking	Hon. S. Canning ...	...	E. M. M. 208 ...	In lanes.
„ „ ...	Colchester	W. H. Harwood ...	...	In litt.	
„ „ ...	Guestling	Rev. E. N. Bloomfield	June 29 ...	E. M. M. 307 ...	One.
Ephyra orbicularia	Haslemere	C. G. Barrett ...	May ...	In litt. ...	Flying at dusk.
„ „	Worcester?	A. Edmunds ...	...	In litt. ...	Bred.
Asthena blomeraria	Cotswolds	Rev. H. Roberts ...	June (e) ...	E. M. M. 187 ...	At rest on a lamp.

Acidalia rubricata	Bury	Rev. A. H. Wratislau	...	Entom. 189 ...	Rare.
,, trigeminata	Loughton	H. Vaughan ...	June ...	In litt. ...	Flying at dusk.
,, circellata	Manchester	C. Campbell ...	Aug. 15 ...	E. M. M. 132 ...	Bred from the eggs.
,, subsericeata ...	Guestling	Rev. E. N. Bloomfield	June ...	In litt. ...	Not uncommon.
,, ,, ...	Loughton	H. Vaughan ...	June ...	In litt. ...	Flying at dusk.
,, inornata	Near Hastings ...	Rev. E. N. Bloomfield	Aug. 9 ...	In litt.	
Cabera rotundaria	Worcester?	A. Edmunds ...	...	In litt. ...	Two specimens bred.
Aleucis pictaria	Loughton	E. G. Meek ...	April ...	In litt. ...	Sitting on sloe bushes.
Macaria alternata	Fairlight	Rev. E. N. Bloomfield	July 20 ...	In litt. ...	One specimen.
Aventia flexula	... ...	P. C. Wormald ...			
,, ,, ...	Mickleham	J. P. Barrett ...	...	Entom. 331	
Fidonia conspicuata	Colchester	W. H. Harwood ...	...	In litt. ...	Common.
,, ,, ...	Ipswich	T. Last ...	...	Entom. 189 ...	Common.
Sterrha sacraria	Ilfracombe	J. S. Masterman ...	...	E. M. M. ...	In a stubble field.
,, ,, ...	Isle of Wight... ...	J. Pristo... ...	May 15 ...	Entom. 289 ...	One at rest, three others.
,, ,, ...	Exmouth	G. B. Longstaff ...	Aug. (c.) ...	E. M. M. 132 ...	Amongst grass.
,, ,, ...	Brighton	J. W. Russell ...	Aug. 27 ...	E. M. M. 131 ...	In a clover field.
,, ,, ...	Dorsetshire	E. Dale	Aug. 31 ...	E. M. M. 114 ...	A ♀ recorded J. C. D.
,, ,, ...	North Perthshire ...	J. B. Blackburn ...	Aug. 14 ...	E. M. M. 114 ...	Three specimens.
,, ,, ...	Highgate	H. J. S. Pryor ...	Aug. 20 ...	E. M. M. 113 ...	At light.
,, ,, ...	Lancashire	S. J. Capper ...	Aug. 6 ...	Entom. 347 ...	Flew to light.
,, ,, ...	Newark	G. Gascoyne ...	Aug. 19 ...	E. M. M. 113 ...	Recorded also in Entom.
,, ,, ...	Neath	J. T. D. Llewelyn	Aug. 9 & 15	E. M. M. 91 ...	One at light, another at rest.
,, ,, ...	Isle of Wight... ...	H. Rogers ...	Aug. 14 & 16	Entom. 347 ...	Two ♀s, one at sugar.
,, ,, ...	Babbicombe	T. Terry ...	Aug. 26 ...	E. M. M. 131 ...	A ♂.
,, ,, ...	Isle of Wight... ...	J. Pristo ...	Sept. 3 ...	Entom. 348 ...	Two eggs obtained.
,, ,, ...	Bolton quarry ...	E. L. Ragonot ...	Aug. 21 ...	E. M. M. 131 ...	At ragwort flowers.
,, ,, ...	Southsea	H. Monecraff ...	Aug. 22 ...	Entom. 347 ...	Also on Sept. 2.
,, ,, ...	Plumstead	C. Boden ...	Sept. 7 ...	E. M. M. 131 ...	Also recorded in Entom.
,, ,, ...	Lancashire	...	...	Entom. 347 ...	Four recorded by C. S. G.
,, ,, ...	Wallasey	E. L. Ragonot ...	Aug. 16 ...	E. M. M. 131 ...	One, another missed.
,, ,, ...	South Wales	J. T. D. Llewelyn		E. M. M. 154 ...	Four more examples.
Aspilates citraria	Herne Bay	H. Vaughan ...	August ...	In litt. ...	Larva on wild carrot
,, ,, ...	Ventnor	E. G. Meek ...	Augnst ...	In litt. ...	Common

Local and Scarce British Lepidoptera for 1867—*continued.*

Species.	Locality.	Captor.	Date.	Reference.	Remarks.
Emmelesia decolorata ...	Hampstead	H. Vaughan ...	June ...	In litt. ...	Flying in meadows.
,, unifasciata ...	Herne Bay	C. J. Buckmaster...	Sept. ...	E. M. M. 133 ...	At flowers of ragwort.
,, ,, ...	Witherslack	J. B. Hodgkinson...	...	E. M. M. 154 ...	40 specimens.
,, ericetaria ...	Rannoch	T. & J. B. Blackburn	Aug. ...	E. M. M. 138 ...	Flying over heath.
Eupithecia campanulata ...	Isle of Man	E. Birchall ...	June ...	Entom. 312 ...	At flowers.
,, pulchellata ...	Edinburgh	A. Wilson ...	August ...	Entom. 344 ...	In larval state.
,, ,, ...	York	T. J. Carrington ...	August 24 ...	In litt. ...	New locality.
,, subfulvata ...	Croydon	H. Vaughan ...	October ...	In litt. ...	In larval state.
,, albipunctata ...	York	T. J. Carrington ...	March 19 ...	In litt. ...	Bred a fine series.
,, lariciata ...	Cotswolds	Rev. H. Roberts ...	June ...	E. M. M. 187 ...	Eggs obtained.
,, ,, ...	Haslemere	C. G. Barrett ...	May ...	In litt. ...	Beaten.
,, ,, ...	York	T. J. Carrington ...	May 18 ...	...	Sitting on larch trees.
,, irriguata ..	Guestling	Rev. E. N. Bloomfield	May 7 ...	E. M. M. 206 ...	On trunk of a tree.
,, indigata ...	York	T. J. Carrington ...	May 18 ...	In litt. ...	Sitting on fir trees.
,, distinctata ...	Isle of Man	C. Campbell ...	June ...	E. M. M. 132 ...	New locality.
,, subciliata ...	Box Hill	P. C. Wormald ...	July 31 ...	In litt. ...	Beaten from maple.
Lobophora viretata	South of Wales ...	J. T. D. Llewelyn	May ...	E. M. M. 263	
,, ,, ...	Colchester	W. H. Harwood ...	...	In litt. ...	One specimen.
,, hexapterata ...	Worcester	A. Edmunds ...	...	In litt. ...	Eleven specimens.
Ypsipetes ruberata	Wallasey	E. L. Ragonot ...	...	In litt. ...	Bred from pupæ under bark.
Melanippe hastata	Ipswich	T. Last	...	Entom. 189 ...	Fourteen specimens.
Coremia munitata	Perth	J. Stewart ...	August ...	Dr. B. W. in litt.	
,, quadrifasciaria ...	Colchester	W. H. Harwood ...	...	In litt.	
Camptogramma fluviata ...	Guestling	Rev. E. N. Bloomfield	Jane (b.) ...	E. M. M. 207 ...	One specimen.
,, ,, ...	Dorking	Hon. S. Canning ...	...	E. M. M. 208 ...	At ivy.
,, ,, ...	Neath	J. T. D. Llewelyn	May 6 & 7 ...	E. M. M. 16 ...	At light, three specimens.
,, ,, ...	Exeter	G. B. Longstaff ...	August ...	E. M. M. 131 ...	A male.
,, ,, ...	Peckham	J. P. Barrett ...	July & Aug.	Entom. 331 ...	At light.
,, ,, ...	Colchester	W. H. Harwood ...	...	In litt. ...	One specimen.
,, ,, ...	Derbyshire	...	...	Entom. 316 ...	Recorded by Rev. Sir C. R. Leighton, Bart.
,, ,, ...	Hampstead	P. C. Wormald ...	Aug. 31 ...	In litt.	

Camptogramma fluviata ...	Hampstead	L. Lorinier ...	Sept. ...	H. V. in litt. ...	At light.
„ „ ...	Vale of Neath ...	J. T. D. Llewelyn	Aug. 15 ...	E. M. M. 92 ...	Fifteen specimens.
Phibalapteryx lignata ...	Ipswich	T. Last	...	Entom. 189 ...	At light.
Scotosia vetulata	Croydon	H. Vaughan ...	July ...	In litt. ...	Amongst buckthorn.
„ „	Witherslack	J. B. Hodgkinson...	July 14 ...	E. M. M. 138	
Eucosmia undulata	Guestling	Rev. E. N. Bloomfield	June 20 ...	E. M. M. 207	
„ „	Colchester	W. H. Harwood ...	...	In litt. ...	Larvæ also taken.
„ „	Near York	T. J. Carrington ...	July 10 ...	In litt. ...	Very fine condition.
Cidaria psitticata	Perth	J. Stewart ...	October ...	Dr. B. W. in litt.	At light.
„ silaceata	Perth	J. Stewart ...	June ...	Dr. B. W. in litt.	
Lithostege griseata	Near Brandon ...	T. Brown ...	June 18 ...	Entom. 348 ...	Seventeen bred. Larvæ found
Madopa salicalis	Kent?	T. Eedle ...	June ...	Entom. 313 ...	No locality given.
„ „	Haslemere	C. G. Barrett ...	May ...	In litt. ...	Very scarce this year.
Nascia cilialis...	"The Fens"	T. Eedle ...	August ...	In litt.	
Hypœna crassalis	Sevenoaks	E. G. Meek ...	July ...	In litt. ...	Amongst bilberry.
Hypœnodes costæstrigalis ...	Near York	T. J. Carrington ...	July 6 ...	In litt. ...	A series taken.
„ „ ...	Bidston	E. L. Ragonot ...	...	In litt. ...	Ditto.
Herminea derivalis	Guestling	Rev. E. N. Bloomfield	June & July	E. M. M. 207 ...	One of them at light.
Pyralis glaucinalis	Colchester	W. H. Harwood ...	...	In litt.	
„ „	Guestling	Rev. E. N. Bloomfield	...	In litt. ...	Several specimens.
Rhodaria sanguinalis ...	Birkenhead	E. L. Ragonot ...	...	In litt. ...	Common on sand hills.
Acentropus niveus	Haslemere	C. G. Barrett ...	June ...	In litt. ...	New locality.
Botys hyalinalis	Surrey	T. Eedle ...	June ...	In litt.	
„ „	Box Hill	P. C. Wormald ...	July & Aug.	In litt. ...	By beating oaks.
„ lancealis	Guestling	Rev. E. N. Bloomfield	...	In litt. ...	Two specimens.
„ terrealis	Ulverstone	J. B. Hodgkinson...	June 14 ...	E. M. M. 138	
„ asinalis	... ...				
Spilodes sticticalis	Bury	Rev. A. H. Wratislau	...	Entom. 189 ...	Very local.
Scopula decrepitalis	Rannoch	T. & J. B. Blackburn	August ...	E. M. M. 139 ...	Near foot of Craig Cross.
Simæthis pariana	Wandsworth... ...	G. B. Longstaff ...	Sept. ...	E. M. M. 132 ...	Among apple, nettle, yew.
Scoparia murana	Birkenhead	E. L. Ragonot ...	August ...	In litt. ...	Common.
„ cratægalis	Epping	P. C. Wormald	July 6 ...	In litt. ...	Also at Box Hill.

Local and Scarce British Lepidoptera for 1867—*continued.*

Species.	Locality.	Captor.	Date.	Reference.	Remarks.
Scoparia truncicolalis ...	Dartford	P. C. Wormald ...	July 25 ...	In litt. ...	On Baldwyn's fenee.
,, atomalis ...	Black Forest ...	T. & J. B. Blackburn	August ...	E. M. M. 139	
,, alpina ...	Black Forest ...	T. & J. B. Blackburn	August ...	E. M. M. 140 ...	Two specimens.
,, pallida	Near Haslemere ...	C. G. Barrett ...	...	E. M. M. ...	Several taken.
Homœosoma nimbella ...	Isle of Man	H. Vaughan ...	June ...	E. M. M. 68 ...	Larvæ in chamomile, 1866.
Acrobasis consociella ...	Hastings	Rev. E. N. Bloomfield	July 2 ...	In litt. ...	Several specimens.
Cryptoblabes bistriga ...	Worcester ,, ...	A. Edmunds ...	...	In litt. ...	One specimen.
Myelois cribrum	Essex coast	H. Vaughan ...	April ...	In litt. ...	Larvæ in thistle stems.
,, pinguis	Near York	T. J. Carrington ...	July 25 ...	In litt. ...	Off ash trees.
Hypochalcia ahenella ...	Forfarshire	J. Stewart ...	July ...	Dr. B. W. in litt.	Bred!
Nephopteryx abietella ...	Surrey	T. Eedle ...	June ...	In litt.	
Pempelia subornatella ...	Howth	C. S. Gregson ...	June & July	E. M. M. 70 ...	New locality.
,, ,, ...	Isle of Man	E. Birchall ...	June (c.) ...	Entom. 312 ...	Among wild thyme
,, formosa ...	Essex	T. Eedle	June ...	In litt.	
Crambus dumetellus... ...	Haslemere	C. G. Barrett ...	June ...	In litt. ...	In rough fields.
,, ericellus	Rannoch	T. & J. B. Blackburn	August ...	E. M. M. 139 ...	Not uncommon.
,, hamellus	Haslemere	C. G. Barrett ...	August ...	In litt. ...	On heaths.
,, selasellus	"The Fens"	T. Eedle ...	August ...	In litt.	
,, latistrius	Birkenhead	E. L. Ragonot ...	Aug. 11 ...	In litt. ...	Common, but not fine.
,, ,, ...	Haslemere	C. G. Barrett ...	August ...	In litt. ...	On heaths.
Chilo gigantellus	"The Fens"	T. Eedle ...	August ...	In litt.	
Antithesia capræana ...	Woolmer F.	C. G. Barrett ...	July ...	In litt.	
,, carbonana ...	Tilgate	E. G. Meek ...	June ...	In litt. ...	A single specimen.
,, ,, ...	Witherslack	J. B. Hodgkinson...	May 19 ...	E. M. M. 38 ...	Rare in woods and rough fields.
,, ,, ...	Haslemere	C. G. Barrett ...	June to Aug.	In litt.	
,, sauciana ...	Surrey	T. Eedle ...	June ...	In litt.	
Dichelia grotiana	Hampstead	P. C. Wormald ...	July 14 ...	In litt. ...	
Tortrix cinnamomeana ...	Woolmer F.	C. G. Barrett ...	July ...	In litt. ...	Amongst oak.
Lozotænia cratægana ...	Woolmer F.	C. G. Barrett ...	July ...	In litt. ...	Common among oak.
Phlæodes crenana	Witherslack	J. B. Hodgkinson...	May 28 ...	E. M. M. 138	
,, immundana ...	Tilgate	E. G. Meek ...	June ...	In litt. ...	Beaten out of birch.

Dicrorampha acuminatana ...	Isle of Wight ...	E. G. Meek ...	August ...	In litt. ...	A single example.
„ consortana ...	Witherslack	J. B. Hodgkinson...	July 14 ...	E. M. M. 138 ...	New to the locality.
„ sequana ...	Haslemere	C. G. Barrett ...	June ...	In litt. ...	In rough fields.
Hedya servillana	Haslemere	C. G. Barrett ...	May & June	In litt. ...	Among sallows in woods.
„ lariciana	Witherslack	J. B. Hodgkinson...	July 14 ...	E. M. M. 138	
Steganoptycha geminana ...	Surrey	T. Eedle ...	July ...	In litt.	
„ „ ...	Sevenoaks	E. G. Meek ...	July ...	In litt. ...	Amongst bilberry.
„ ustomaculana	Rannoch	J. B. Blackburn ...	August ...	E. M. M. 139 ...	Freely at Black Forest.
Anchylopera ramella ...	Tilgate	E. G. Meek ...	June ...	In litt. ...	Amongst black poplar.
„ diminutana ...	Haslemere	C. G. Barrett ...	May ...	In litt. ...	Amongst sallow.
„ biareuana ...	Tilgate	E. G. Meek ...	June ...	In litt. ...	Scarce.
Dictyopteryx Shepherdana...	"The Fens"	T. Eedle	August ...	In litt.	
Oxygrapha scabrana... ...	Exeter	H. D'Orville ...	Autumn ...	E. M. M. 187 ...	In abundance.
„ boscana	Exeter	H. D'Orville ...	August ...	E. M. M. 187 ...	Sparingly.
Pædisca oppressana	Edmonton	H. G. Knaggs ...	June 12 ...	E. M. M. 37 ...	About a dozen.
Roxana arcuella	Hampstead	H. Vaughan ...	June ...	In litt. ...	Flying in sunshine.
Semasia ephippana	Crosby	E. L. Ragonot ...	August ...	In litt. ...	Among willows.
Retinea pinicolana	Dartford	P. C. Wormald ...	July 25 ...	In litt. ...	Baldwyn's fence.
„ turionella	Haslemere	C. G. Barrett ...	June ...	In litt. ...	Beaten from young fir.
Heusimene fimbriana ...	Darenth	E. G. Meek ...	April ...	In litt. ...	Scarce. Also by T. E.
Grapholitha microgrammana	Folkestone	J. L. Courtice ...	June (b.) ...	E. M. M. 36 ...	Over ononis.
Endopisa punctieostana ...	W. Wickham ...	P. C. Wormald	June (b.) ...	In litt. ...	Amongst heath.
Cnephasia alternana... ...	Rannoch	J. B. Blackburn ...	August ...	E. M. M. 140	
Euchromia rufana	Lancashire	J. B. Hodgkinson...	...	E. M. M. 139	
„ purpurana ...	Haslemere	C. G. Barrett ...	June ...	In litt. ...	By a railway bank.
Sericoris abseissana	Isle of Wight ...	E. G. Meek ...	August ...	In litt. ...	A single specimen.
„ „	"The Fens"	T. Eedle ...	July ...	In litt.	
„ littorana	Isle of Man	E. Birchall ...	...	Entom. 312	
„ euphorbiana ...	Folkestone	J. L. Courtice ...	June (b.) ...	E. M. M. 36 ...	Over spurge.
„ bifaseiana ...	W. Wickham ...	P. C. Wormald	June 22 ...	In litt. ...	One specimen.
Mixodia palustrana	Rannoch	J. B. Blackburn ...	August ...	E. M. M. 139 ...	Plentifully.
Eriopsela quadrana	Isle of Man	E. Birchall ...		Entom. 312 ...	Three specimens.
Chrosis Audouinana	Loughton?	T. Eedle	June ...	E. M. M. 69	
„ „	Haslemere	C. G. Barrett ...	June ...	In litt. ...	Flying in a wood path
Argyrolepia dubrisana ...	Tunbridge Wells ...	Hon. T. de Grey ...	May 25 ...	E. M. M. 37 ...	Rather early?
„ „ ...	Folkestone	E. G. Meek ...	May ...	In litt. ...	Several specimens.
Eupœcilia atricapitana ...	Isle of Man	E. Birchall ...	...	Entom. 312	
„ albicapitana ...	Howth	W. F. Kirby ...	June 27 ...	E. M. M. 90	

Local and Scarce British Lepidoptera for 1867—*continued.*

Species.	Locality.	Captor.	Date.	Reference.	Remarks.
Eupœcilia albicapitana ...	Howth	E. Birchall ...	...	In litt.	
„ nana ...	Tilgate	E. G. Meek ...	June ...	In litt. ...	Abundant.
„ ambiguana ...	Haslemere	C. G. Barrett ...	June ...	In litt. ...	Apparently getting scarce.
„ „ ...	Tilgate	E. G. Meek ...	...	E. M. M. 37 ...	Beaten from underground.
„ flaviciliana ...	Kent	T. Edle ...	August ...	In litt.	
Cochylis smeathmanniana ...	Wimbledon	J. B. Blackburn ...	May ...	E. M. M. 64 ...	Over Anthemis cotula.
„ „ ...	Hampstead	P. C. Wormald ...	Aug. 12 ...	In litt. ...	At light.
Pterophorus acanthodactylus	Herne Bay	C. J. Buckmaster...	August (e.)...	E. M. M. 133	
„ „	Near Hastings ...	Rev. E. N. Bloomfield	June 9 ...	In litt.	
„ punctidactylus	Haslemere ...	C. G. Barrett ...	Sept. ...	In litt. ...	Flying in a lane.
„ hieracii ...	Delamere F.	N. Greening ...	...	E. M. M. ...	Larva discovered on Teucrium.
„ pilosellæ ...	W. Wickham ...	P. C. Wormald ...	July 27 ...	In litt. ...	In a swamp.
„ bipunctidactylus	Colchester	W. H. Harwood ...	...	In litt. ...	In the larval state.
„ Loewii	Haslemere	C. G. Barrett ...	July ...	In litt. ...	Not recognised before, but the food plant is common.

Table of Larvæ discovered and described in 1867.

* F.f. = *full fed.*

Species.	Date.	Food.	By whom and where described.	Remarks.
Trochilium chrysidiforme ..	F.f.* July (b.)	Roots of dock and sorrel	W. Buckler, E. M. M. iv. 14.	Discovered simultaneously by Mr. E. G. Meek, and in Corsica by M. P. Mabille.
Miana furuncula ..	F.f. June (b.)	Stems of Festuca arundinacea	W. Buckler, E. M. M. iv. 137.	Forwarded to Mr. Buckler by self.
Agrotis lunigera ..	F.f. Oct. (e)..	Will eat Polygonum aviculare	W. Buckler, E. M. M. iii. 188.	Discovered by Mr. T. Terry.
Noctua conflua ..	May ..	Silene acutalis ..	E. Newman, Entom. iii. 182.	? Distinct from N. festiva.
Acidalia emutaria ..	F.f. June (m.)	Will eat Polygonum, Lotus, &c.	Rev. J. Hellins, E. M. M. iv. 89.	Discovered by Messrs. Fenn and Jones.
Pachycnemia hippocastanaria ..	F.f. Oct. (m.)	Calluna vulgaris ..	E. Newman, Entom. iii. 355.	Larvæ known previously, but undescribed.

Table of Larvæ—*continued*.

Species.	Date.	Food.	By whom and where described.	Remarks.
Lithostege griseata ..	August ..	Sisymbrium sophia ..	Rev. J. Hellins, E. M. M. iv. 115.	Discovered by Mr. Brown, of Cambridge.
Tanagra chærophyllata	F.f. June (b.)	Flowers of Bunium flexulosum	W. Buckler, E. M. M. iv. 85.	Incorrectly described before. Discovered by Mr. Howard Vaughan.
Phycis adelphella ..	July 18 ..	Aspen	Rev. E. Horton, E. M. M. iv. 152.	Feeds between the leaves.
Pterophorus isodactylus	.. ..	Stems of Senecio nemorensis	M. P. C. T. Snellen.	See note, E. M. M. iv. 39, by Mr. Stainton.
Pterophorus hieracii ..	May (m.) ..	Teucrium scorodonia ..	N. Greening, E. M. M. iv. 18.	Further interesting notes, E. M. M. p. 39.
Pterophorus plagiodactylus ..	April & May	Scabiosa columbaria ..	C. S. Gregson, Entom. iii. 186.	Feeds in the heart of its food-plant.
Pterophorus osteodactylus ..	F.f. Spring ..	Flowers and seeds of Solidago virgaurea	C. S. Gregson, Entom. iii. 201.	Hybernates in the larval state.

NEW BRITISH TINEINA.

By H. T. Stainton, F.R.S.

In the past season three novelties have been detected in this country, and been added to our list of Tineina. These are *Solenobia conspurcatella*, Zeller (an Italian species, though also found latterly in Belgium), *Ypsolophus ustulellus*, Fabricius (a species by no means uncommon near Brussels, and now found in the cabinets of two zealous Entomologists of Worcester), and *Opostega reliquella*, Zeller, a small white species, with the dull inert flight of its congeners.

Solenobia conspurcatella, Zeller. (Fig. 3.)

This pretty species, first detected in Tuscany by Herr Joseph Mann in 1846 (see Stettin. Ent. Zeitung, 1850, p. 59), was met with near Brussels in 1861 by my friend M. Fologne, who thus wrote to me, March 15th, 1861: "I have bred a species of *Talæporia* distinct from *Inconspicuella*. I found the cases *containing pupæ* three weeks ago. (*Inconspicuella* is now *still* in the larva state.) They were under the bark of a dead tree."

On the 28th of the same month he wrote to me: "I now send you this *Talæporia*, which I take freely on the wing at the place where I had found the cases—the specimens are all very similar to that which I send and the species does not seem to vary much." Subsequently, on passing through

Brussels, M. Fologne liberally supplied me with a fine series of the males of this species, which at that time I thought undescribed.

On my return home from the South of France, at the beginning of April last, I found waiting for me a letter from a new correspondent, Mr. A. H. Swinton, with a sketch of a moth he had met with at the latter end of March, 1867, on the shore of Southampton Water, opposite Calshot Castle—the species was found flying, not uncommonly, in the neighbourhood of spruce firs. On asking for the sight of a specimen, Mr. Swinton most liberally sent me several, and I at once recognised the insect taken by M. Fologne, near Brussels in 1861.

I have been very near describing the species as new, never having thought of looking for it amongst the species described from *Tuscany;* but in working at my forthcoming volume on the Tineina of Southern Europe, when I came to the description of *Solenobia conspurcatella*, it at once occurred to me that this was my Southampton friend, and on comparing description and specimens together, their identity was at once apparent.

The following is the description which I had written out for my friend M. Fologne, whilst under the impression that the insect was new to science:—

"Alis anticis angustulis, albido-stramineis, nitidis, concinne fusco-punctatis, maculis tribus majoribus fuscis, prima dorsi basim versus, secunda dorsi ante medium, tertia disci pone medium; antennis distinctissime ciliatis.

"Exp. al. $5\frac{1}{2}$—$6\frac{1}{2}$ lin.

"Head fuscous. Face fuscous, mixed with whitish straw-colour. Antennæ pale fuscous, very distinctly ciliated.

"Anterior wings shining, whitish straw-colour, delicately spotted with fuscous, and with three larger fuscous spots, the most distinct at the end of the discoidal cell; on the inner margin, a little before the middle, is another almost as distinct, and the third lies on the inner margin near the base of the wing; the small spots along the costa beyond the middle are particularly distinct; cilia fuscous at the base, then paler fuscous, intersected by several faint dashes of whitish straw-colour.

"Posterior wings pale grey, with a faint purplish gloss; the cilia silky pale grey.

"In markings this perhaps comes nearest to *S. inconspicuella*, but is distinguished at a glance by the very different ground colour, by the more opaque hind wings, and by the distinctly ciliated antennæ."

Ypsolophus ustulellus, Fabricius.

Professor Frey makes the remark in his "Tineen und Pterophoren der Schweiz," that it is extraordinary the English Fauna should only possess two species of *Ypsolophus*, and at that time *Fasciellus*, which even yet is always a rarity with us, and the pretty, neat *Marginellus*, were the only two known British species. Since then *Juniperellus* has occurred in Perthshire, and no doubt we have it also in many parts of the South of England.

Of *Ustulellus* Frey remarks, "widely distributed but scarce; occurring in Livonia, Hungary, Naples, and the North of France; but in Germany more in the south, at Frankfort-on-the-Main, Carlsruhe and Constance; also in Austria.

"Scarce in Switzerland; observed at Bremgarten (Boll) and Lausanne (Laharpe)."

Here there is only one locality bordering upon England, but on turning to Duponchel we find "il n'est pas rare dans le département du Nord."

In May, 1857, passing through Brussels on my return from Zürich, M. Fologne gave me some specimens of *Ypsolophus ustulellus* captured near Brussels, and two years subsequently, when on my journey towards Ratisbon, he gave me some more specimens of the insect. Its occurrence as no rarity near Brussels led me to expect it would ere long make its appearance in the British List.

When at Brussels in September, 1862, Dr. Breyer gave me some larvæ of the insect, from which I made the following description on the 21st of that month :—

"Length 8 lines. Dull green, inclining to yellowish-green; dorsal vessel darker green; head large, dark brown; anterior half of the second segment brown, posterior half blackish; anterior halves of the 3rd and 4th segments greenish, posterior halves blackish; spots large and black; the penultimate segment with a dark green-grey ring anteriorly and another posteriorly.

"It feeds between united leaves of hazel and hornbeam, and passes the winter full-fed in the larva state."

In the latter part of October, 1867, two specimens of a new British insect were placed in my hands for determination, and they proved to be the well known Continental species, *Ypsolophus ustulellus*.

The captor, the Rev. E. Horton of Worcester, thus writes in the pages of the Entomologist's Monthly Magazine (vol. iv. p. 152), "The finest was taken, with another as fine, about eight miles from here, May 29th, 1864, sunning itself on lime leaves. I took *Roeslerstammia Erxlebella* at the same time. The worn specimen was taken close at home in 1865. I forget the time of year, but I know that I beat it

out of hazel." Mr. A. Edmunds, of Worcester, has a specimen captured in 1861, of which he thus writes: "Six years ago I beat out of a birch tree into my net a fine and perfect example of this handsome insect. A season or two afterwards the Rev. E. Horton I believe captured three, but it was only very lately that he kindly gave me the welcome information that it was a species new to our lists. Neither of us knew at the time of capture that we had ferreted out anything new in Worcestershire. The fact is cheering, and I trust the next season will enable us to complete our series of this species, and likewise to assist our friends."

To convey to our readers an idea of the insect it may be mentioned that the expansion of the wings is from 9 to 10 lines, that the anterior wings are narrower than in *Y. fasciellus*, of a rusty brown, more or less sprinkled with greenish-yellow scales towards the base.

Fabricius says of the species "*alæ lineares*," an expression which is much too forcible, but the remainder of his description is very characteristic.

Opostega reliquella, Zeller.

Zeller, in the third volume of the Linnæa Entomologica (published in 1848), describes, under the name of *Reliquella*, a new species of the genus *Opostega*. He then possessed only two specimens.

Subsequently, he met with it in some plenty; and, in 1850, he sent me a fine series, which were taken on the banks of a flooded meadow, on the 29th and 30th of May.

The species closely resembles *Salaciella*, and is only distinguished from it by the presence of a (rather faint) yellowish fascia beyond the middle of the anterior wings. *Salaciella*, as far as I am aware, has never the slightest indica-

tion of a fascia. Unfortunately, the distinctness of the fascia varies much in different specimens of *Reliquella*, so that sometimes it is scarcely visible.

There seems, however, a difference of habit in the two species; *Salaciella*, as far as I know, always frequents dry localities, and generally is only met with singly; on the 17th June, 1858, I captured twelve specimens of *Salaciella*, near Guildford, amongst *Trifolium arvense* and *Rumex acetosella*; otherwise I have only met with it singly; and Zeller says of it, that near Glogau he has often found it in the driest fir and birch woods, but always singly.

In a box of insects sent me for determination by the Hon. T. de Grey, M.P., I found a specimen of *O. reliquella*, the first British specimen I had seen. An inquiry, as to the locality and date of its capture, produced the following reply:

"I have seen three specimens, and three only, of *Opostega reliquella* here [near Thetford]; I took one last year, in an open grass-plot on the outskirts of a wood. I caught a second, in exactly the same spot, about the middle of June (11th?) this year, in my hat, but it escaped; and the third (which you saw), I beat from mixed growth in a grass-ride in the woods, about 150 yards from where I took the other two: this last specimen was taken early in August, as far as I can remember."

Shortly afterwards, I received from Mr. P. C. Wormald, notice of some captures of *Tineina* in 1867, and was much struck with the following entry:

"*Opostega salaciella*, near Hampstead, August 6th, swarming on a gas-lamp." The idea of *Salaciella* swarming seemed to me so novel, that I wrote for further information, and begged a sight of the specimens; one of them

is an undoubted *Reliquella;* another, taken along with it, seems more doubtful. The singular circumstance is, that Mr. Wormald only found the *Opostega* on one particular evening, and only at one lamp; not one was to be seen on any of the neighbouring lamps which he examined.

Possibly, in some of our collections, *Reliquella* may be found mixed with *Salaciella.*

It would be very desirable to discover the larvæ of both species.

The only larva of this genus, of which any thing is known, is that of *Opostega auritella;* Dr. Schleich found it in 1863, near Stettin; it lives in May, in the flower-stalks of *Caltha palustris.* Unfortunately, only a single, crippled specimen was bred; and I am not aware that the larva has again been met with.

P.S.—Since writing the above, Baron von Nolcken (of Arensburg, in the Island of Oesel), who is now with me, and has lately been visiting Meseritz, informs me that Professor Zeller is now disposed to consider *Reliquella* and *Salaciella* only as extreme forms of the same species.

OBSERVATIONS ON TINEINA.

By H. T. Stainton, F.R.S.

A second visit to the South of France—where I arrived at Cannes on the 27th of February, and left Mentone on the 27th of March—has added largely to my stores of observation, respecting the *Tineina* of that sunny country; but a few only of these observations are noticed here, as the whole will find a place in the forthcoming volume on "The Tineina of Southern Europe."

I must beg the true, exclusive, British collector not to suppose that he is in no way concerned with the South of Europe; insects from that part of the world are constantly turning up on our shores. The conspicuously beautiful, new *Solenobia*, already noticed in this volume, was first detected in Italy, and even the original specimen of *Ypsolophus ustulellus*, described by Fabricius, was an Italian one.

But, altogether independently of the occurrence amongst us of insects only previously known as occurring on the banks of the Mediterranean, it is no slight matter to have opportunities of studying the habits of species allied to, or congeneric with, those of this country, whose mode of life still remains a mystery to us. Of this we have a noteworthy instance in the genus *Zelleria;* this genus was created in England, and we have three distinct species; and though there is a tradition that I actually bred a specimen of *Z.*

hepariella fifteen years ago, to this day we are ignorant of the larvæ of all our British species. Now, near Cannes, M. Millière, whose praiseworthy researches into the habits of the *Lepidoptera* of Provence are conferring a great boon on the Entomologists all over Europe, has met with the larva of a *Zelleria*, closely allied to *Hepariella*, and I have handled these larvæ by the dozen, and have described them and had them figured. M. Millière, in the eighteenth number of his "Iconographie et Description de Chenilles et Lépidoptères inédits," figures the transformations of this new species, and describes it under the name of *Zelleria Phillyrella;* but to this subject I shall again recur in its proper place.

The species marked * are not yet known as British.

* *Hyponomeuta egregiella*, Duponchel (see E. A. 1867, p. 17). I renewed my acquaintance with the larva of this species, in the first week in March, and found, in some localities about Cannes, the insect was particularly plentiful; individual bushes of *Erica scoparia* appearing quite full of their white webs. At Mentone I have not yet found this species; but as on the eve of my quitting that spot, I, in company with Mr. J. T. Moggridge, noticed a considerable quantity of the *Erica scoparia* on the ridge (where *Arbutus* grows so freely) between the Cabrolles valley and the Gorbio valley, I should not be surprised if hereafter the *Egregiella* should be found there.

When at Fontainebleau, on the 1st of April, M. Berce shewed me some specimens of *H. egregiella*, from the forest there, and his note respecting them was as follows;—"Che-"nille vivante en société sur les bruyères en Mai, éclos fin "de Mai, Fontainebleau, (1857)." That very afternoon, whilst making a ramble together through the forest, we fell in with the larvæ, in far greater profusion than I had ever

met with them in the South, and feeding on our common English *Erica*, *E. cinerea*.

I should observe, that Fontainebleau, with its sandy soil and numerous rocks, is a particularly warm locality, though less than forty miles from Paris; and that some insects occur in the forest there, which are not again met with till the collector has proceeded 250 miles further towards the South.

Hence it does not necessarily follow, that because this species of *Hyponomeuta* occurs at Fontainebleau, it *must* occur with us, but its occurrence so much further North than Cannes, and its being perfectly at home on *Erica cinerea*, should be an additional reason for our looking for it.

M. Millière, who has published his observations on this species in the sixteenth number of his "Iconographie, etc.," calls attention to the fact, that the species occurs near Lyons in tolerable plenty; and that the specimen described by Duponchel came from "les environs d'Avesnes," which is in the Département du Nord.

The sandy heaths of Hampshire will probably, some day, supply our collections with this species.

**Prays oleellus*, Boyer de Fonscolombe (see E. A. 1867, p. 18). I was comparatively unfortunate with the larvæ of this species last spring: they were not quite so far advanced as the previous year when I left Mentone, and I returned home with very few pupæ, but, on the other hand, with several larvæ not yet fed up; the olive shoots which I had brought with me to supply them, decayed before the larvæ were full fed, and starvation stared my larvæ of *Oleellus* in the face. In this dilemma, I resolved to try them with some plant nearly allied to olive, and I gave them privet—selecting twigs on which the young shoots were just bursting. I was gratified by finding that the larvæ took kindly to the

privet, and the amount of the excrement they deposited showed that they really partook of the strange food I had offered them; in due time, two specimens of the *imago* were reared (May 1st and 3rd), from these larvæ, which had fed-up on privet.

**Depressaria rutana*, Fabricius. Of this species, so long forgotten, I have now had the pleasure of making the personal acquaintance. Directly I arrived at Cannes, M. Millière proposed that we should make an excursion to the Isle St. Marguerite; so, as a natural result, we had a series of windy days, making the boat-trip thither unpleasant or impossible; I began at last to think the excursion never would be carried out: however the morning of Monday, March 11th, was propitious, the sea was beautifully calm; and I had the pleasure of visiting the island in company with M. and Madame Millière, Dr. and Madame Segnac.

Directly we landed, the large tufts of rue (*Ruta angustifolia*) attracted my attention, as here was the locality where M. Millière had promised I should find the larvæ of *D. rutana*; after much search on my part, and much beating into his umbrella, on the part of M. Millière, the result was one larva of *D. rutana*. M. Millière could only account for our bad success by suggesting that we were rather early for the species, the season being comparatively a backward one.

On the 14th March, the day after my arrival at Mentone, I visited the rocky slope above Pont St. Louis, in company with Mr. J. T. Moggridge, and there found one small larva of *D. rutana*. I searched again and again in that locality, and also in other localities wherever I met with *Ruta*, but to no purpose till, on the 21st of March, I visited the principality of Monaco. The sides of the promontory are laid out here and there in a series of terraced, zig-zag walks;

there is a certain amount of artificial gardening, but many of the natural productions of the soil grow unheeded, and perhaps a little more luxuriantly than if on the perfectly uncultivated ground; the plants of *Ruta* growing here had, certainly, a more sturdy aspect, than those I had previously met with; and here I found the larvæ of *D. rutana*.

They were very easy to find—drawing together a few leaves of the plant, with a slight amount of web, after the manner of the genus; I looked carefully over every plant of *Ruta* I could find in this sequestered nook, and collected about thirty larvæ; the perfect insects made their appearance from the 4th to the 16th of May.

The larva I have thus described:

Young larva. Length $1\frac{1}{2}'''$; yellowish-green; head black; 2nd segment reddish-brown black; anterior legs black.

Larva, two-thirds grown. Length $6\frac{1}{2}'''$; green; dorsal vessel slightly darker; spots small, black, placed in pale green rings; head black; anterior edge of the 2nd segment reddish-brown, posteriorly with two large black lunate plates, scarcely divided in the centre, anal segment pale green; anterior legs yellowish.

Adult larva. Length 9'''; this had faint indications of darker green subdorsal lines.

Gelechia pinguinella, Treitschke (see E. A. 1865, p. 129). On the 15th of June last I received some larvæ of this species from Mr. Bond, with the intimation that they were taken from the tree which furnished the perfect insects in 1865. The larvæ were just in the act of spinning when they reached me, but I made the following description:—Length $5\frac{1}{2}'''$; pale green, with a faint rosy tinge on the back, leaving the dorsal and subdorsal lines paler; head black; 2nd segment with a black lunate mark on each side; spots small, blackish.

I believe it still a disputed point on what the larva *feeds*;

all accounts seem to agree that the full-fed larvæ are found *gregariously under the bark* of poplar trees. Frey states that according to Schmid the larva feeds on the *leaves* of the poplar trees; according to the observations of the late Herr Grabow the larva feeds on the *moss* growing on the trunks of poplar trees. Let us hope that Mr. Bond will next year ascertain where the larva is, and what it is doing, about the second week in May.

**Gelechia figulella*, Staudinger (Ent. Zeit. 1859, p. 242). As my friend Professor Zeller is still perplexed as to the specific distinctness of *G. terrella* and *G. desertella*, it must be a source of great satisfaction to him to learn that Staudinger's *figulella* comes between the two, but has a reddish tinge, which we do not perceive in either *G. terrella* or *G. desertella*. It will be remembered that I bred a specimen of *G. desertella* from a firm sand-cocoon accidentally picked amongst some moss on the sand-hills near Bideford in May, 1865 (see Ent. Mo. Mag. vol. iii. p. 57); but in reference to *G. figulella*, my information goes further, and I have actually described the larva.

On the afternoon of the 28th of February, M. Millière conducted me to a sandy wood near the sea, on the east side of Cannes; thence we emerged on to some sand-hills on which grew plants of *Silene Nicæensis*. These had been terribly eaten by some larvæ, the young shoots being often eaten quite level with the surface of the sand; we sat down beside them and began to poke away the sand from about the stems of these plants; in so doing we dislodged a number of larvæ, with similar habits to those of *G. marmorea*, and a number of firm sand-cocoons, quite similar to those of *G. marmorea*. Indeed I believe the bulk of the larvæ and pupæ we thus collected belong to a new species closely allied to *G. marmorea*.

The following morning I rose early to describe the larva

of the suspected novelty, which I was anxious to have figured as soon as possible, lest indeed they should all be spun up before that could be effected. On turning out the sand-cocoons and larvæ on the table, great was my surprise to find one larva which differed from all the others; it was larger, nearly 6 lines long, the others averaging only $4\frac{1}{2}$; it was whitish-ochreous instead of greenish, and instead of a shining black head, the head was pale brown, with the mouth darker. In short it was evident at a glance that this larva was totally distinct from the others.

I described it as follows:—Length nearly 6‴; whitish-ochreous; head pale brown, the mouth darker; second segment with a dark brown semi-crescent on each side; dorsal line slender, reddish-ochreous; subdorsal lines dark brown, paler in front; spots minute black; anal segment glassy.

I put this individual larva carefully in a box by itself, and it commenced spinning-up the same day; on the 27th of April it produced a specimen of *Gelechia figulella!*

I bred three other specimens from the sand-cocoons on the 6th, 8th and 10th of April—so that the specimen which appeared on the 27th of that month was exceptionally late, but for which circumstance I should not have had the pleasure of seeing the larva; the proper time for finding these larvæ should be the latter half of January up to the first week in February.

I am now actually acquainted with the larva of one of the *Terrella* group, but as yet I do not know it in a feeding state, but the probability seems to me very great, that it feeds on the *Silene Nicæensis*. I do not call to mind that there was any moss in the locality where we found these plants. The sand was perfectly loose and shifting. If *Gelechia desertella* be also attached to one of the *Caryophyllaceæ*, it will probably be found to feed on the same *Cerastium* as the larva of *G. marmorea*.

Gelechia terrella, W. V. The following notice of the larva of our very old friend has appeared in the 8th volume of the Tijdschrift von Entomologie, p. 131, from the pen of that excellent observer, P. C. T. Snellen :—" I found two specimens of this still undescribed larva at the end of March near Rotterdam; one was on turfy ground, the other on a sandy spot, where some grass came through. When I reached home I placed these larvæ in a confectioner's glass with some grass-plants, and found on examining them, that they had spun a sort of loose silken case on the ground between the grass; in this case they could move very quickly either backwards or forwards. They fed on the lowermost parts of the grass-stems, which they gnawed off, and after some time each formed a cocoon of silk mixed with earth, a few Dutch inches deep in the ground; in this they changed to the pupa state; the pupa is light brown. Two specimens of the imago appeared on the 1st and 18th of June.

" The larvæ, when I found them, were a Dutch inch in length; thin, cylindrical, like the larva of *Eurrhypara urticata*, Hb., and of many *Tortricina;* of a dark green-grey colour, rather shining, beneath somewhat paler, and clothed with short hairs on black warts. On the back one saw three indistinct darker lines, and on the first segments behind the head an indistinct whiteness. The head was black, small; the second segment broader than the head, yellow, with two black spots. When they were older the colour was paler, more greyish, and when they had attained their full size they were about a Dutch inch and a-half in length." [Judging from these dimensions a Dutch inch must be about the half of one of ours.]

Gelechia lucidella, Stephens. Mr. P. C. Wormald writes me that he met with this species at Ruislip Reservoir, Middlesex, on the 22nd of July, and that by sweeping the

Typha latifolia he found it rather commonly. I hope some day to have the pleasure of taking the insect myself.

Gelechia arundinetella, Zeller (see E. A. 1858, p. 91). The occurrence of this species in a swampy place at Lee (alias "*the* sallow pit") is already recorded by Mr. Douglas in the 3rd volume of the Ent. Mo. Magazine, p. 91. Previously I had been in the habit of making pilgrimages to Hackney, sometimes two or three times in a season, in search of this insect, which, though sometimes abundant in the larva state, is almost impossible to breed, and specimens captured on the wing remind one of many an Entomological description, because it is almost impossible from them to make out the species.

As the insect had been detected in a locality so near to myself I hoped to have succeeded in getting a fine series of larvæ, and possibly expected to have reared a few of the perfect insect. However, repeated visits to the spot only resulted in one probable larva which I did not rear. I then tried for the imago, and had the pleasure of capturing a very inferior specimen on the 22nd July, the very day that Mr. Wormald was better employed amongst *G. lucidella*.

On the 11th of November Mr. Sang sent me from Darlington a *Carex* leaf, which I believe was mined by several of the young larvæ of this species; it probably feeds gradually throughout the winter, only becoming torpid during the continuance of frost. I entertain very little doubt but that the insect may be found nearly throughout the country wherever there are the swampy places which produce the *Carex riparia* or *paludosa*.

**Ypsolophus trinotellus*, Herrich-Schäffer (Neue Schmetterlinge, p. 6, No. 35, description very good; the figure had better not be looked at, so I do not refer to it); *Gelechia torridella*, Zeller in lit. (not the *Parasia torridella* of Mann).

Of this well-marked species I have had the pleasure of breeding five specimens. Their history is as follows:—

On the 18th of March, 1867, I received in the evening a letter from Mr. J. T. Moggridge—"I enclose a few red larvæ, with black heads, which have robbed me of all the seeds of the wild wallflower, gathered by my father at Dolce Acqua." The larva was new to me, and as a seed-feeder I expected some species of *Œcophora;* I described it thus:—

Length 3‴; dull red; head black; second segment rather darker red, and with a subcutaneous dark grey mark of irregular form. Feeds on the seed of the wild wallflower (*Cheiranthis Cheiri*).

I was not a little surprised, when from these larvæ I bred, on the 30th June, three specimens of an insect which was only previously known to me from a specimen which I had received from Professor Zeller under the name of *Gelechia torridella*, when I visited him at Glogau in 1855. This Zellerian specimen was captured near Syracuse on the 3rd of May, 1844. I bred another specimen on the 2nd of July, and another on the 15th of that month.

The perfect insect when sitting had a peculiar posture, the anterior portion of the body being slightly raised, something like the position of *Gelechia Mouffetella* when at rest, which is unlike that of any other *Gelechia* which I know.

I hope next spring the seeds of the wild wall-flower at Dolce Acqua will be again collected—never was a truer instance of the old proverbs—

"Nothing's lost that a friend gets,"

And

"It's an ill wind that blows nobody any good."

Wallflower grows wild abundantly in many parts of England, so possibly we may some day turn up *Ypsolophus trin otellus.* The specimen described by Herrich-Schäffer was captured

in Corsica—as his Neue Schmetterlinge (of which only three parts have yet appeared) is probably to be found in few libraries. I annex a translation of his description:—

"Like the smallest specimens of *Silacella*, but certainly distinct; the posterior wings narrower than the anterior wings, the costa and inner margin parallel. The head, palpi, back of the thorax, the inner margin of the anterior wings as far as the fold, the hind margin narrowly, and the costa from the middle broadly, leaden grey. At one-third of the length of the wing a deep black longitudinal streak on the fold; at two-thirds a brown grey triangle from the inner margin to the middle of the wing. Cilia dark grey, with the divisional and marginal lines blackish. The antennæ are sharply annulated black and white."

The ground colour of the anterior wings, omitted by Herrich-Schäffer, is bright ochreous.

Ypsolophus verbascellus, W. V. The larva of this species seemed very common everywhere about Cannes, on the plants of *Verbascum*; I began collecting them on the 1st of March, of various sizes, and my friend, the late Mr. Henry Wade Battersby, collected some on the 6th of March, without my having indicated to him that there were larvæ to be found on the *Verbascum*. In this country it has hardly been noticed out of the county of Norfolk; perhaps we rather overlook the species.

Œcophora fuscescens, Haworth. I met with several of this species (which, like *Gelechia mulinella* has a great tendency to run about with its wings a little raised, and almost invariably dies with them over its back) at Pitlochrie in Perthshire. I always imagine that the larva is a rotten wood-feeder, but I am not aware that the species has ever been bred.

Tinagma resplendellum, Stainton. I met with the larvæ

of this species in great plenty on the 16th of August at Blair Athol, especially on one individual alder bush; I also found them tolerably common at Dunkeld and not rare at Pitlochrie. I have now a goodly number of fed-up larvæ, and hope next season to breed a tolerable supply of the imago. Strange that we have not yet discovered the habit of the larva of the much commoner *T. sericiellum!*

**Zelleria Phillyrella*, Millière (Iconographie et Description de Chenilles et Lépidoptères inédits. Livraison 18, p. 286, pl. 81, f. 6—8). In the spring of 1866 M. Millière sent me a few insects to name; amongst them was one which I referred to *Zelleria hepariella*, and told him that the larva was suspected to feed on yew; he replied in this I must be mistaken, as the insect in question had been bred from *Phillyrea*, a very different plant from yew.

When I arrived at Cannes last spring M. Millière promised to show me some of the larvæ from the *Phillyrea*, which produced the insect, I had been disposed to refer without any hesitation to *Z. hepariella;* the first week in March we ascended one of the lower hills near Cannes, and from a plant of *Phillyrea angustifolia*, which was most luxuriantly full of blossom, M. Millière, by the aid of his stick and umbrella, obtained from twenty to thirty of a larva quite new to me, and which he assured me would produce the new species of *Zelleria*, for which he proposed the name *Phillyrella*. This larva I have thus described.

Length 4 lines. Greenish at the sides and beneath; the entire dorsal region reddish as far as the sub-dorsal lines; dorsal line darker; spots pale green, very small; head and second segment pale dull yellowish. Attenuated anteriorly, slightly so posteriorly. The young larvæ are green, without the reddish tinge.

Makes webs amongst the flowers of the *Phillyrea*, on which it feeds. The larva was very plump and soft-looking, aud I believe many died in consequence of being bitten by their companions; three days afterwards some of the larvæ commenced spinning-up and formed dense white cocoons, similar to those formed by the larvæ of the genera *Argyresthia* and *Swammerdamia*.

The 7th of March I revisited the same spot with my young friend, the late Mr. H. W. Battersby, and though I tried very assiduously for some time I could not succeed in detecting the larvæ *in situ;* they were apparently only obtainable by beating.

The perfect insects began to appear as early as the 2nd of April, whilst I was at Fontainebleau, and most of the specimens were bred before I reached home, and my readers will readily conceive that *Micros* bred on a journey stand a very poor chance of making good cabinet specimens.

However, directly I wrote to M. Millière of this misfortune he very liberally sent me some freshly-bred specimens, and I have now, thanks to his kindness, a decent series of the insect.

Though closely allied to *Z. hepariella*, the anterior wings are narrower, more shining, of a paler colour, with a faintly indicated whitish basal streak just above the fold; on the fold beyond the middle is a black spot, and in one of my specimens (the only one that emerged after I had reached home) there are several small black spots towards the costa. The posterior wings are also paler than in *Z. hepariella*, and the tuft of the head is paler, almost whitish.

That our *Hepariella* in the perfect state frequents yew trees is an undeniable fact, but we sometimes find that perfect insects do frequent plants on which they have not fed

in the larva state, and as we have not yet found the larva on yew, perhaps there would be no harm in looking for it elsewhere.

The plant from which *Zelleria Phillyrella* has been bred, *Phillyrea angustifolia*, is one of the *Oleaceæ*; its nearest British ally is privet (*Ligustrum vulgare*); ash and lilac are the only other *Oleaceæ* we find commonly with us. Now at Mickleham, where I have taken *Z. hepariella* in some plenty, there is much privet; might it not be advisable to seek on the privet blossom for the larva of *Hepariella?*

Of the genus *Zelleria* I remarked in the 2nd edition of the Entomologist's Companion, p. 60: "Larvæ entirely unknown—yet I have bred a *Zelleria*; but then I never saw or never noticed the larva. All I know is, that it came out of a white cocoon on an ash-leaf, which I had in a jam-pot by itself, and that the ash-leaf had evidently been eaten." (Ash being one of the *Oleaceæ!*)

This specimen was bred on the 27th July, 1852. My numerous captures in 1862 were made at the end of August, but Mr. Wormald writes me word that last summer he obtained this species by beating yew trees at Box Hill on the 30th and 31st July. If the duration of the pupa state be short as in *Z. Phillyrella*, we may deduce that the full grown larvæ should be found at the end of June and beginning of July.

Gracilaria imperialella, Mann. In the Intelligencer, vol. x. p. 141, August 3rd, 1861, I detailed a chapter of accidents relating to this insect, which I somewhat quaintly termed "Imperial misfortunes." Little did I then foresee that a much greater misfortune than any there chronicled would ere long overtake this species. We had mixed two closely allied species under this name.

Dr. Schleich in the Stettiner Entom. Zeitung, 1867,

p. 452, has given the differential characters and described the transformations of the two species. As both cannot retain the name *Imperialella*, one has had to cede the sceptre, and it became a very intricate problem to decide which was the original *Imperialella*.

The species figured in the 8th volume of the "Natural History of the Tineina," of which the larva was discovered by Herr Ernst Hofmann in 1860, in the leaves of *Orobus niger*, must now no longer bear the name *Imperialella*; it is the *Hofmanniella* of Schleich.

The larva of the true *Imperialella* mines the leaves of the comfrey (*Symphytum officinale*) in August. Dr. Schleich thus describes it: "The larva mines at first in spiral galleries, closely filled with greenish excrement, but these soon form a larger blotch on the underside of the leaf; the lower cuticle at first remains flat, but afterwards assumes an inflated appearance and becomes brownish. When the mine has attained this stage we can see indications of it on the upper side of the leaf in the brownish spots, which ultimately unite and form an irregular wrinkled blotch from three-quarters to an inch in diameter. The excrement of the larva is then brownish and lies irregularly scattered in the mine. Sometimes we find two larvæ together in one domicile, but often there are a great many mines in one leaf, even as many as twenty. As long as the 14-footed larva is feeding, it has a transparent, pale greenish, almost colourless appearance, with a distinct dark green intestinal canal throughout its length. When full fed (it is about $2\frac{1}{2}'''$ long), the dark green dorsal stripe diminishes in size as it deposits its last grains of excrement, and the entire body assumes very quickly, often in a single day, a uniform blood-red colour; only the flat and pointed head and the anterior legs remain brownish. It then quits the mine and spins imme-

diately (in captivity generally on the upper side of a *Symphytum* leaf) a rather firm boat-shaped cocoon; at first whitish, but afterwards brown."

It is now a nice question—have we both species in England? or, if only one, which?

Directly I heard of the appearance of an *Imperialella*-like species from the *Symphytum* larvæ, it occurred to me that this would be the species taken in the Cambridge Fens, and I perceive that the same idea has occurred to Dr. Schleich. The specimen captured near Worcester by the Rev. E. Horton, May 30th, 1860, is probably *Hofmanniella*—my reason for thinking so is that in the original description in the Insecta Britannica, p. 201, I have "head yellowish," and when I saw Mr. Horton's specimen I made a correction in my own copy to "head *white;*" now the *white head* is one of the characters of *Hofmanniella*.

I annex copies of Dr. Schleich's diagnoses side by side:—

Gracilaria Hofmanniella.	Gracilaria imperialella.
Capite, fronte palpisque niveis;	*Occipite fusco*, fronte nivea, palpis ♂ albis, ♀ *fuscis;*
alis ant. aureis, fascia baseos abbreviata, strigis tribus costæ, maculis tribus dorsi niveo-*argenteis* nigro-marginatis, ciliis apicis *concavo-truncatis* albis, strigula nigra *inferius* notatis, nigroque terminatis.	alis ant. aureis, fascia baseos abbreviata, strigis tribus costæ, *radice* maculisque tribus dorsi niveis nigro-marginatis, ciliis apicis *rotundatis* albis, striga nigra *dissectis*, nigroque terminatis.

The time and habit of the larvæ may be thus stated:—

Larva on *Orobus niger* in *July*.	Larva on *Symphytum officinale* in *August*.

Coleophora lixella, Zeller. For a very interesting observation on the habit of this larva I am indebted to Herr von

Heinemann of Brunswick; on the 28th of April last he wrote to me as follows:—

"Two years ago, when searching for the larvæ of *Coleophora niveicostella* on *Thymus serpyllum*, I found a small case which was formed of a seed capsule of that plant. The larva was also feeding on that plant, but it soon died. Last year, when again searching amongst the *Thymus*, I found some similar cases on the *Thymus serpyllum*, and others on grass, which the larvæ likewise ate. It afterwards appeared that all the larvæ went to the grass, then quitted the old cases, bored into the grass, from which they cut out new cases, when they were recognisable as the larvæ of *Coleophora lixella*. I believe that this is quite a novel fact that a *Coleophora* larva when young should feed on a totally different plant to that on which it feeds subsequently. I have now observed that in all the places where I have taken *Lixella*, or met with the larger cases, *Thymus serpyllum* grows amongst the grass."

With this letter Herr von Heinemann kindly sent me a number of the larvæ. If the intelligence had come from a less competent observer I should scarcely have credited it. However, I was not long left in doubt; the box contained a number of small larvæ in their cases, made of the calyx of a thyme blossom inverted, with the long points sticking out behind. I went into the garden, got a plant of *Poa annua*, put it in a flower-pot, and turned the little strangers on to it; in two hours' time nearly every one had attacked the leaves of the *Poa annua* and commenced mining long blotches, from which, in the course of a day or two, they formed the ordinary elongate, grass-made *Lixella* cases; the empty cases of the young larvæ, left attached to the grass leaves, can be seen by those who are incredulous like myself, as I have carefully preserved such interesting specimens.

I believe *Coleophora ornatipennella* has a somewhat similar habit; at any rate I have received from Herr Anton Schmid of Frankfort a case, as the case of the young larva of that species, which is evidently the calyx of a labiate plant.

Stathmopoda pedella, L. This insect has at last been bred! On the 2nd of August last I received a letter (dated July 30th) from Herr Hofmann of Ratisbon, with the gratifying intelligence that the larvæ collected the previous autumn in the *berries* of the alder had truly produced *Stathmopoda pedella* and in plenty (zwar in Mehrzahl)!!

This larva, which at the time I scarcely expected would produce *Pedella*, and indeed I found it extremely difficult to extract from the alder-berry without squashing it in the attempt, I have thus described, September 28th, 1866.

Length $2\frac{1}{2}$ lines; head brown; second segment dark brown; body pale brown, with a faint reddish tinge, and with a very faint appearance of indistinct paler spots.

A week previously I had make a description, as under, from a larva which had died in the process of extraction.

Length $3\frac{1}{2}$ lines; pale grey, apparently with a darker band across the middle of each segment; head brown; second segment with a brown plate hardly divided in the centre.

Concerning the appearance of the berry I have the following note:—"Found the bases of the seeds eaten, and some of the intervening husk, and much 'frass' towards the core of the fruit. Eventually a squashed larva was eliminated. Q. E. D. 21/9/66."

Batrachedra præangusta, Haworth. On the 19th of June I received from that indefatigable observer Mr. Healy a

larva of this species quite full fed, and which spun up immediately after I had described it as under.

Length 5‴; whitish on the back and sides, with broad brown-grey sub-dorsal lines, marbled with whitish; the white spiracles placed in grey rings attached to the lower edge of the sub-dorsal lines; head brown, posteriorly black; second segment with a transverse black plate.

Mr. Healy knows well where and when to look for it, so that next year I hope to make the acquaintance of the feeding larva.

Laverna decorella, Stephens. On the 26th of July I received from Mr. Dorville of Alphington, near Exeter, some pupæ of this species, accompanied by the following remarks: "Whilst searching amongst *Epilobium montanum* for the larvæ of *Laverna subbistrigella*, I noticed some little white spots on the stems, and on cutting open a stem I find them to be the ends of white cocoons protruding from what in the interior of the stem enveloped the pupa of a moth.

"This appearance being new to me, although probably well known to you, I send to you by post a box with some pieces of the stem of *Epilobium montanum* containing the above mentioned pupæ and also one stem, tied round with string, which contains a larva still feeding."

On my replying that these were the pupæ of *Laverna decorella*, Mr. Dorville wrote to express his surprise that in the case of the *Epilobium* stems he had found, there should be hardly any appearance whatever of "galls," whereas he should have expected from the published notices of this species that there would have been some raised excrescences on the stems; now the stems so kindly sent me by Mr. Dorville showed here and there a slight degree of thickening, but would scarcely have attracted the attention of the most

observant gall-hunter. In fact it was the protruding ends of the white cocoons which led to these pupæ being found at all.

My own experience of the larva of *L. decorella*, from some kindly sent me by Mr. Barrett two years ago, is that it feeds and grows very slowly, and consumes the plant so extremely leisurely that the natural growth of the plant almost repairs the injury (reminding one of the Abyssinian cow of a distinguished African traveller), and hence by the time the larva is full fed the plant will sometimes retain its normal appearance and the cavity within be little larger than the larva which occupies it. From the pupæ I received from Mr. Dorville I have bred a nice series of the imago.

I could add many more notes from observations kindly furnished by many correspondents, but the above must suffice for the present.

The two following observations have been kindly furnished to me by Baron von Nolcken during his recent visit to this country:—

"*Chalybe* (*Psecadia*) *pyrausta*. I first met with some worn specimens of this species about five years ago at Pichtendahl on the island of Oesel; I afterwards obtained finer specimens, and on sending some of them to Professor Zeller he confirmed my conjecture that it was the true *Pyrausta* of Pallas.

"The following notice, I should observe, may not be perfectly exact, as I cannot place implicit reliance on the accuracy of my memory.

"In the most forward seasons *Pyrausta* began to fly as early as the end of April, and was already over about the

middle of May. In 1867 the first made its appearance the beginning of May, and it continued till after the 20th of that month. With us the trees are just unfolding their leaves when this species occurs, and when the woods have assumed their summer dress *Pyrausta* is over. It flies of its own accord in the mid-day sun, though from its dark colouring is very hard to see, but it is not to be started from the grass by beating, and, to avoid pursuit, lies still as though dead. I have met with it singly about 10 a.m. on grass stems or low down on the trunks of trees. The smaller ♀ is very difficult to find, since it seems to fly very rarely. In the course of several years, though I have taken many of the ♂, I only found one ♀ in the grass. Its head-quarters was the margin of a broad ditch, which was richly decked with a variety of plants and surrounded by young trees. Amongst the lower plants on the borders of this ditch I had my suspicions that *Thalictrum aquilegifolium* was possibly the food of the larva, because in the neighbourhood this plant did not again occur, no more did the *Pyrausta*. In 1866 I had the good fortune to find the larva of *Pyrausta* on the *Thalictrum* in July. It lives singly, though there are frequently from two to four on one plant, exposed on the surface of the leaves, and drops down directly the plant is shaken ; on the ground it wriggles about actively and speedily escapes. It has the usual form and varied colouring of the larvæ of the genus *Psecadia*. Orange-yellow spots on the darker ground colour form several longitudinal stripes along the back and sides ; I cannot however describe it more in detail from recollection.

"It is easily reared, but the larvæ are often ichneumoned. From the larvæ I obtained almost as many females as males. The cocoon is white, the pupa black-brown.

"The last larvæ spun up towards the end of August.

"In the middle of winter I brought the pupæ into the heated room, and the moths made their appearance in about two (?) weeks."

"* *Swammerdamia conspersella*, Tengström. The larva of this species feeds (in June?) on the crowberry (*Empetrum nigrum*), amongst which it forms a web with fine white threads, and, in the middle of this, it prepares itself a case-like cocoon for the small pupa. I found it very plentifully at Pichtendahl on a dry moor."

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